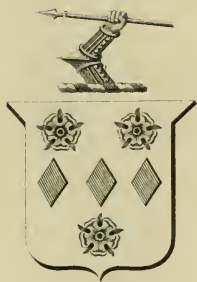



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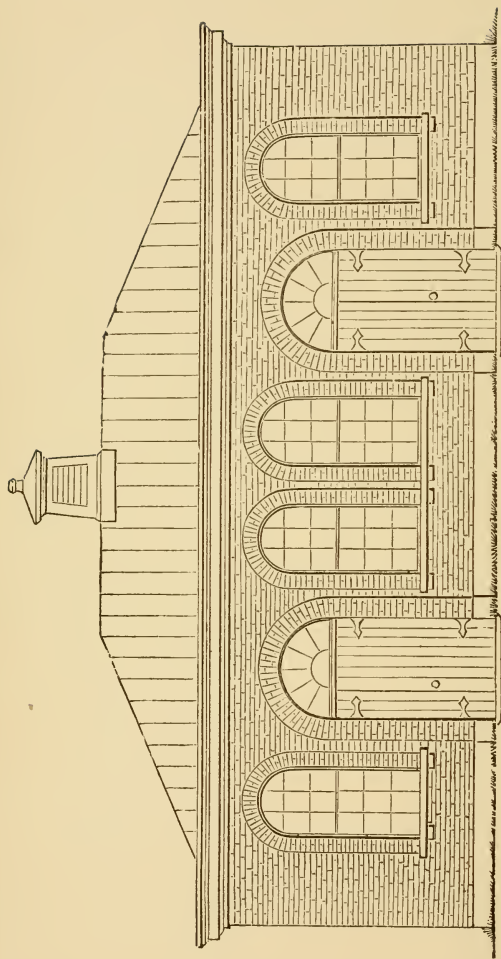


John R. Fell.

Mark W. Allam
Medea, Pa

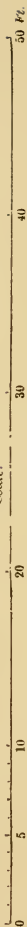


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Elevation of Garden Front of Stable of Fairman Rogers, Philadelphia.

Scale.



J. K. Fell
THE *Dec. 29th*

GENTLEMAN'S *1882.*

STABLE GUIDE:

CONTAINING

A FAMILIAR DESCRIPTION OF THE AMERICAN STABLE;
THE MOST APPROVED METHOD OF FEEDING, GROOM-
ING, AND GENERAL MANAGEMENT OF HORSES;

TOGETHER WITH

DIRECTIONS FOR THE CARE OF CARRIAGES, HARNESS, ETC.

BY

ROBERT McCLURE, M.D., V.S.,

AUTHOR OF "DISEASES IN THE AMERICAN STABLE, FIELD, AND FARM YARD."



PHILADELPHIA:

P O R T E R & C O A T E S,

822 CHESTNUT STREET.

Entered, according to Act of Congress, in the year 1870, by

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Eastern District of Pennsylvania.

MEARS & DUSENBERRY, STEREOTYPERS.

SHERMAN & CO., PRINTERS.

P R E F A C E.

THIS little book is founded on a *reasoned* experience of many years as a veterinarian. It treats of the construction of private stables for the gentleman, the "Club," the farm, the livery, and the railroad; of the care of horses in health,—dietetics, regimen, and hygiene; of carriages and harness, and how to take care of them. All is elucidated in such a way, that no one need plead ignorance as to the duties of grooms and the requirements of the stable,—the quantity and quality of food the horse requires, and how to prepare it, together with the effects which may be expected.

Knowing well the general want of economy in most of our stables, a guide or preceptor will not be

thought unnecessary or out of place, and should it be even partially instrumental in the removal of error, prejudice, or short-sightedness from professed horsemen, as “Diseases in the American Stable, Field, and Farm-Yard” has been in regard to the erroneous views of the treatment of the diseases of all our domestic animals, and the substitution of a humane, scientific, and successful system, the result will sufficiently satisfy the

AUTHOR.

PHILADELPHIA, 1869.

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THE AMERICAN STABLE GUIDE.

INTRODUCTION.

THE NUMBER OF HORSES IN THE UNITED STATES is estimated by careful judges at nearly eight millions—embracing all varieties, from the peerless Dexter, trotting his mile in 2m. 17 $\frac{1}{4}$ s., or the magnificent thorough-bred stallion, the proud sire of hundreds of winners on the turf, to the veriest drudge that drags his weary load along the crowded streets of our large cities. The value of these animals has been computed at from \$2,000,000,000 to \$3,000,000,000, a sum almost sufficient to pay off the national debt, and perhaps greater than the entire gold product of the world for the period in which they were reared.

They may for convenience be divided into four classes, though all such distinctions are of course arbitrary, as they run into one another, so that it is difficult to say where one class begins and the other ends.

1st. Thorough-bred stallions of acknowledged reputation as foal-getters.

2d. Horses, not stallions, distinguished for their performances on the turf, or giving promise of great speed.

3d. Horses of speed, but not quite so fast as those in the 2d class.

4th. Horses of general utility.

5th. Horses of slow work.

Of these the first class has always commanded the highest prices, both in this country and in England.

Says a writer in a recent number of a prominent sporting journal:—

“Horses of great reputation have always commanded great prices. At Newmarket, in 1805, a bay colt, by Pipato, sold for \$75,000. In the same year, a two-year old colt by Benningborough, a two-year old by Volunteer, and a three-year old filly by Sir Peter, were sold for \$75,000 each. For the celebrated horse Shark \$50,000 were refused, and O’Kelly declined to accept an offer of \$100,000 for his stallion Eclipse. Tradition says that the Duke of Devonshire refused for Flying Childers the weight of the horse in gold. A few years ago, the great sire Stockwell could not be bought for \$100,000, and we presume that when Gladitateur was carrying everything before him on the English turf, the Count de Lagrange would not have parted with him for \$150,000.”

In this country stock-breeders and owners of costly animals, not being so wealthy as a class as their brethren

in the mother country, and the stakes contended for being neither so numerous nor so valuable, the prices paid have ranged considerably lower. Nevertheless, the celebrated running stallion Lexington was purchased for \$15,000, for stock purposes, by the late Mr. Alexander soon after his wonderful performance at New Orleans, from the effects of which he became blind; and when remonstrated with by his friends for paying what was then considered an enormous price, Mr. Alexander counted out upon the table \$15,001, the price he had just received for Norfolk, a son of Lexington, since valued at \$40,000, thus showing the judiciousness of his purchase. Kentucky, another son of Lexington, cost his owner, Mr. Leonard W. Jerome, \$40,000; and Mr. Alexander refused \$50,000 for Asteroid, Kentucky's half-brother. Glencoe (imported), Lexington's old antagonist, changed hands at \$35,500. Priam, Jr., a descendant of Old Priam, purchased during the war by a member of the Christian Commission when only 9 months old, and sent to Pennsylvania, was sold a few days since for \$5000, without any knowledge of his speed and endurance, but on account of his perfection of form and splendid pedigree. His present owner will not take double that amount for him.

Mr. Bonner has just purchased for \$20,000 the trotting stallion Major Winfield, the sire of Commodore Vanderbilt's "Mountain Boy," and "Joe Elliot," who lately trotted a mile in 2.19½.

Mr. C. P. Relf has refused an offer of \$50,000 for his famous stallion Mambrino Pilot, and with reason—for a moderate estimate of his earnings for a single year was calculated at more than one-fifth that amount. Hambletonian, the prince of trotting stallions, is valued at \$100,000, notwithstanding his advanced age.

The second class is more numerous than the first, but is still very small in comparison with the whole number of horses in the United States, and may be set down at about 70,000, commanding prices ranging from \$3000 to \$10,000, with many instances where two and three times the latter figure has been paid. Mr. Bonner gave \$33,000 for Dexter, and, had it not been for his notoriously bad temper, and the bad condition of his feet, defects which, thanks to his owner's careful treatment and judicious shoeing, have been effectually overcome, the price would doubtless have been much higher, as he might easily have made more than that amount in a single year by exhibiting at fairs and on the track. "George Palmer" cost his owner \$28,000; the bay horse "Henry," raised in Kansas, has been sold during the past year for \$15,000, and \$36,000 has since been offered for him and refused by his present owner. \$20,000 was paid for "Goldsmith Maid," and \$17,500 for Lady Thorn. The horses Fearnought, George Wilkes, and Draco Prince, trotting in 2.25, are valued at \$20,000 each.

It must be remembered that all the "Fancy" horses do not appear on the turf or race-course, as the greater num-

ber are in the hands of private and wealthy gentlemen, and only used for road or driving purposes or for the stud.

The individual value of horses of the third class is much less than those of the two previously mentioned; but as a class being much more numerous, their aggregate value is much larger.

A horse that can trot in 2.45 will readily bring from \$1500 to \$2000. A Bashaw or Messenger that can trot in 2.35 will command \$5000, while one that can beat 2.30 is considered cheap at \$10,000, and for every second less in the twenties \$1000 additional can be obtained.

The fourth class comprises about three-eighths of the whole number, and includes all such animals as are stylish in action and well adapted for general wagon and road purposes. The prices paid vary from \$300 to \$2000.

Lastly, we have that most useful and most frequently much-abused and badly-kept animal, the horse of slow work, numbering about 5,000,000, or five-eighths of the whole, commanding prices from \$50 to \$200.

The prices and figures above given will show at a glance what a valuable animal the horse is, and what a sum of money is invested in horseflesh in America alone.

And yet, notwithstanding the enormous interests involved, it is surprising that so little intelligent thought has been given this subject. Proverbially wasteful and reckless as we Americans are, in nothing are we more so than in our care of the noblest and most useful animal

which God has bestowed on man. Especially is this true of his treatment when in the stable, where the groom is allowed to mismanage the poor brutes committed to his tender care, as his whim or ignorance may dictate. To show how a stable ought to be constructed and managed, is the object of this little work ; whether it has been successful or not it is for the reader to judge.

CHAPTER I.

STABLES.

The Gentleman's Stable—Its Comfort—Completeness—Walls—Windows—Doors—Drainage—Stalls—Mangers and Racks—Hall Posts—Loose-Boxes—Advantages and Disadvantages—Ventilation—Light—Temperature—Sleeping-Room—Carriage-House and Harness Room or Closet.

AT no day since the domestication of the horse, has he been so comfortably provided for as in the stable of the American gentleman. The splendor and pomp of the wise king of Israel, the gaudy trapping, tinselled show and ornamental fixtures of the oriental prince, cannot be compared with the more substantial arrangements provided for the care and comfort of American carriage and pleasure horses. Whatever lack of comfort there may be found to exist cannot be truthfully charged to any imperfection or want of provision in the construction of our fine stables in all their details. This may without fear of contradiction be called the heyday of stable comfort for the horse of the gentleman of the United States. High ceilings, airy stalls, ample loose-boxes, good drainage with free ventilation, will be found to be the rule and not the exception. Compare the

stables of to-day, both in their number and perfection, with those of a quarter of a century ago, and no difficulty will be found in arriving at the deductions here announced concerning them. Therefore, in the pride of our spirit we say, that the experience obtained in a series of years in the second city of this republic, where duty and love of the horse impelled us to erect such establishments, leads to the conclusion that there is little to be desired in addition to what already exists for the arrangements of the stable and comfort of the horse.

It must be remembered by all who are interested in such matters that the plans for our private city stables and their perfection have been executed almost in opposition to circumstances, and in many instances beyond the comprehension of the owners. A small lot of ground behind or back of the dwelling, or at least within reasonable distance of it, is usually selected as the stable site, and it is upon this that we find the finished stable and carriage-house of the gentleman. The ingenuity of the architect and the craft of the builder has erected a house for the horse and family equipage of which no age nor country can claim a better, and apparently under adverse circumstances. This, then, is the stable of the present, which is acceptable to us for all purposes intended, and from which we prefer to take as a text the description of the gentleman's city stable.

THE WALLS of city stables and carriage-houses are almost invariably built of brick of the ordinary kind, but on the front aspect or wall it is usually faced with pressed brick

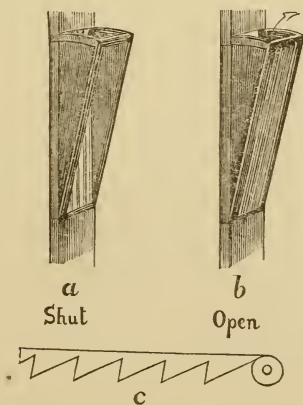
of extra quality and laid with skill and care. The lintels of windows and doors are not the same in all stables, some being arched with brick, others with granite, brownstone, marble, or iron. On the inside of the walls some are plastered, others boarded with pine and sometimes even with foreign and more expensive wood, in many instances giving the appearance of a huge polished box. This high finish is usually given to the walls of the stable and carriage-house only. The hay-loft, except where there are rooms for the groom or coachman to sleep in, are not so highly finished in this respect; nor is this necessary, either for the keeping of the hay or feed. In some instances, however, the game of billiards and other amusements are carried on over the stable, and where sufficient ventilation is secured no injury to carriage, harness, or horse can result from such a contrivance; in fact, it may sometimes be a decided advantage, for horses like company and even excitement about them.

THE DOORS are usually of two sizes, one for the stable proper and the other for the carriage-house; the latter opening in the middle and sliding on rollers back against the wall, thus occupying little or no room when open, and obviating any risk of horses or carriages coming in contact with it. This plan of opening large carriage-house doors cannot be always adopted, from want of space or width of wall to allow the door to run back its whole length. When this is the case, they should be hung on hinges and open out on the street; always, however, taking the precau-

tion of having prongs of iron to fasten them when open, to prevent the wind or other agency from throwing them against whatever may be passing through. Neglect of this precaution results in injury to the panels of the carriage, and more than once has contact with the open doors been the cause of horses running away. The doors of the stable are in some cases placed on hinges, and in others on rollers, sliding back against the wall like the carriage-house doors. The hinged door when opening into the stable is objectionable, chiefly on account of its being sometimes left partly open and the horse being loose at the time or thoughtlessly led out, jamming himself between the door and the wall; whereas if the door opened outwardly or was placed on rollers, it would open to its fullest extent, or slide back to its proper place by the simple pressure made against it. The key of the stable door at the time it is unlocked should be taken out of the door and put in its proper place; that is, if it is a long-handled one and apt to catch upon some of the harness when horses are passing. For this reason, also, stable-door keys should have a ring to turn them by, instead of the usual shank or long handle, and a place sunk in the door or wood for this ring to fall and lie in while it is in the door.

THE WINDOWS of city stables are chiefly confined to the front of the building, showing into the carriage-house; but if there are back windows, they are generally placed above the horses, so as to throw the light into the stable-loft, and not into the stable or horse apartment at all. In many

instances this is done because in large cities owners and occupants of houses have an aversion to horse-stable windows facing them. Many suits at law have been brought against the owners of stables by persons living opposite to these windows, and we are sorry to say the result is generally in favor of the plaintiffs, thereby compelling the building up of the windows and darkening the stable, to the inconvenience of the stable men, and also to the injury of the horses, particularly of their eyes, as dark stables are one great cause of weak eyes and blindness. To obviate this difficulty, and as we know of no law preventing a fixture to the stable of whatever device or pattern one may choose, we would select the plan here illustrated, where neither glass nor horse can be seen from the outside.



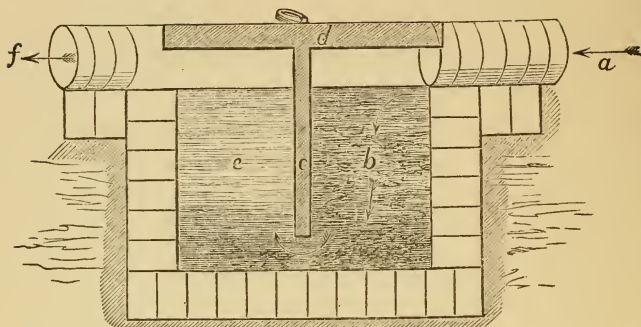
(a) represents the window closed; (b) the window opened; (c) the ratchet to regulate and hold the window open. The arrow in figure (b) shows the direction of the air.

Windows of this description, as far as we know, have not been much used in our stables, but can be seen on the southern exposure of the Philadelphia County Prison (Moyamensing); answering, we believe, the objection to exposed windows on buildings usually considered not the most respectable to some neighborhoods. The windows should be above the level of the head, so that when open no cold draught of air will force itself against the horse in a direct line. This we will more fully explain when considering ventilation.

THE FLOORS of city stables are of various kinds of material. The stable proper, its stalls, loose-boxes, &c., are usually covered with wood laid in various ways. This material is perhaps less objectionable for such purposes than any other in use, since floors laid with wood last longer and need less repairing than do those laid with stone; however, some persons object to wood on account of its becoming saturated with urine and other animal fluids in a short time. Concrete is another substance now used in some rare instances for floors of stables, but from what we have seen of it we cannot truthfully recommend it for such a purpose, as it is very apt during the hot season to become full of holes and very uneven on its surface; its chief composition being, we believe, gas tar mixed with sand or gravel. Cobble and Belgian pavements are also in use for stable-floors, but more frequently for the floor of the carriage-house or on that part of it upon which carriages stand while being washed. The floor of the carriage-house is in many estab-

lishments the same as is used in the stable, but more usually a portion of it is paved with bricks put down flat, and in some instances, to insure durability, on their edges, especially in that part where the carriage washing is done. In the finer stables, large flagstones are used, and generally in such cases the whole of the floor is thus laid as far as the adjoining one of the stable. This diversity only shows the views and tastes of the architects and builders, and nothing more.

THE DRAINAGE of stables is a matter of much importance, not only in regard to health, but also to cleanliness. In fact, so much is thought of this in relation to stables, that great ingenuity has been displayed in the furtherance and accomplishment of this design. Many plans are in use, but not one of them will serve the purpose, short of a thorough discharge of the fluid from the stable without a return of the ammonia and gas up the drains and through the openings into them from the floor of the stable. We do not refer to drains on the surface, as their gases are diluted with the air of the stable, but to the deep gutters conveying the urine, &c., to the common sewers of the city. To thoroughly drain the stable of its fluids and carry them to the sewers of the city, at the same time preventing a return of gas, is perhaps all that is wanted; and for this purpose a contrivance made of cast iron is now used and is called a trap, which closely fits to the opening in the drain under the floor of the stable. A catch-pit is the most effectual way of stopping the foul gas from entering the place; and we think that without it no stench-trap can be complete.



Section of Catch-Pit.

The plan of this pit is that the fluid from the stable at *a* falls into the division *b* partitioned in the centre *c*, all of which is firmly fixed in by a stone or iron lid *d*, and fitted in a frame at its top, where it remains till taken off for the removal of the solid portions contained within it at *b*.

The sides of the iron partition run in grooves fitted well in the plaster or mastic lining of the pit—at all events fitting sufficiently close to prevent the solid portions from passing into the division *e*. As will be seen the partition *c* does not reach to the bottom of the floor, but within



Iron surface Gutter.

one to four inches of it, and it is through this space the fluid is to pass, filling it to the top on the other half *e*,

till running over into and through the pipe *f* as fast as it runs in at *d*, presuming of course the pit to be level. By adopting this construction, all stench-traps may be dispensed with, substituting in their place a simple iron surface-drain, as seen in the preceding engraving, with its checkered cover also of iron, and movable to allow of its being cleaned with the stable-broom and cold water.

THE STALLS are from $5\frac{1}{2}$ to 6 feet in width, and are generally separated by solid wooden partitions. However, in some stables, boards of from 4 to 6 inches in width are used, with a space of 2 or 4 inches between them; to this plan we object, particularly when such spaces are left in the lower portion of the partition, allowing the foot of the horse to find its way through into the other stall, to be injured by another horse, or, as is sometimes the case, a leg to be broken when he has been lying down, and suddenly springs to his feet with great force while his foot is in such a place. To prevent the horses from biting each other over the tops of the stall divisions, an ornamental iron railing is used, which we think is very appropriate, since it not only allows a free current of air to pass, but also gives the stable a finer appearance, which is by no means to be ignored, though appearances in a stable are not, or at least should not be made at the sacrifice of health and comfort of the horse. Incompatibility of health, comfort, and harmony of design should never be allowed, when at the same expense it can be made perfectly admissible without doing violence to either.

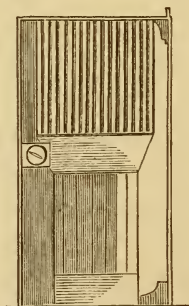
THE MANGERS AND RACKS of stables in cities are now in a majority of cases made of iron, with three divisions or a cavity for hay-feed, mashes, soft feed or gruel. The high hay-rack elevated above the horse's head is now almost a fixture of the past, and to be seen only in the stable of the farmer or other old-fashioned establishment. The manger and rack are to meet certain objections to the low or present position and form, and are made and placed high enough from the floor to prevent the horse from getting his fore feet into them, as would be the case if placed low and without sufficient slope being given toward the horse. This angle or slope inclining towards the horse, in a great measure prevents him from attempting to get into the manger. Nor is this all, for the slope widens the manger and rack, at the same time allowing ample stall-room for the horse to lie and stretch himself at full length without the head getting under the manger, a matter of the greatest importance in the prevention of accident to the horse during his struggles to free himself, an illustration of which can often be seen in the old high manger and rack. Again, if the horse should get his fore feet into the manger, being made of iron, it can bear the weight of the fore part of the horse without injury; but as the rack is usually placed in the corner of the stall and not in the centre, it is very seldom that he will make the attempt. There is a great economy of hay in racks placed below the horse's head, compared with those placed above, since the horse does not waste it by

pulling it down and tramping it among his feet, but it remains in the rack before him. Stonehenge tells us, that the low rack saves the waste of 10 pounds of hay per horse in one week. Where the troughs or mangers are made of wood, to prevent the feet of the horse from breaking through the bottom of them, let a post of thick strong wood be the resting-place for the bottom boards, and have them firmly and solidly fixed upon this; for if this precaution be overlooked, a bottomless manger and an injured horse will occasionally be the result. The top rail or cap of the manger and rack should be either of iron, or hard wood covered with sheet-iron, tin, or zinc, so as to prevent the horse from gnawing it with his teeth when he is idle or restless. This cap rail, to which the halter-ring is to be fastened, is firmly fixed at each end into the travis or wall, thus preventing the possibility of the horse in his endeavors to get loose from pulling the ring and rail with him, thereby injuring the stable as well as teaching him a bad lesson, especially if he be a young horse.

THE STALL-POSTS or bale-posts, as they were formerly called, now rarely reach from the ground to the ceiling, but are from five to seven feet high, and are made of wood (usually cedar) or of cast-iron, round in front, with a groove in the back of them, so as to admit the ends of the boards forming the stall divisions. These posts, whether of iron or wood, are sometimes very attractive in their appearance, from the ingenuity displayed on them by the iron moulder or wood turner.

Cast-iron posts are frequently shattered by a kick of a horse, while with cedar posts this rarely or never occurs. From our experience in this matter, in an economical point of view, we find the wooden posts much preferable, because they less frequently require renewing, and are more easily replaced ; for the pattern of the iron post may be lost, requiring the making of a new pattern, or the substitution of a different form, thus destroying uniformity.

THE LOOSE-BOXES are in some stables the substitutes for stalls, and may be fitly described as two stalls made into one, with the addition only of a partition extending along the edge of the gangway behind the horse as he stands in the stall : in a word, it is two stalls in one, fenced or closed in on all sides, with a door to each box, hung on hinges, or, as in some stables, to slide or run on rollers, and of the form represented in the annexed engraving.



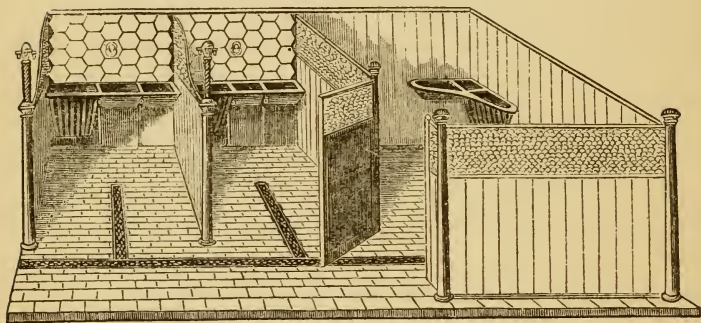
Door for Loose-Box.

As will be seen, the upper portion is made of sparred work, which admits the air, yet prevents the horse or its

neighbor from interfering with each other, and allows the groom to see into the box without opening the door. Where circumstances will allow, the door should be placed on the gangway side, and not in another box or stall. The other portions of the fence around the box should, like its door, be of solid boards, extending up to about two-thirds of its height, the other third to be sparred either with wood, iron rods, or strong wire-work, screwed or nailed to the top of the wooden portion. The upper portion of spars or netting is inserted in a flat iron or wooden bar, firmly secured to the front travis or wall, and attached to the back post at the edge of the gangway, giving strength to the whole fixture. To give strength to loose-boxes, as is now done in our finer stables, the posts or travises are made of sufficient length to reach up, and are secured to a joist in the ceiling of the stable.

THE ADVANTAGES of loose-boxes may be stated to consist in giving to the horse more liberty of action, and consequently a more natural position in a state of domestication than could be accorded to him when tied by the head. Hence the excuse of the Arab, when refusing to sell or part with his favorite horse for gold, that the European would "*tie him close.*" How abhorrent to the mind of the sons of the desert that the winged steed should be tied by the head after a life spent in unrestrained freedom at the side of its dam—whether on the oasis of the desert or the pastures of Pennsylvania. The old, stiff, hard-worked horse and the lymphatic mare are alike benefited by the freedom

given to them in the roomy loose-box. The swelled or filled legs of sickly and debilitated animals are greatly susceptible of improvement under the genial influence of the gentle exercise in the box. The young, the old, the sick, and the well are benefited by the freedom and movement thus allowed, that cannot be gained by confinement, tied by the head in a five or six feet stall. Many a valuable and useful horse, under sickness or suffering from an



Iron Fittings for Stalls and Loose-Box.

accident, has been lost for the want of sufficient space, which is found in the modern loose-box. The sick horse requires more room than when in health. As an agency for the prevention and cure of a crib-biting horse, no other contrivance can compare with it, unless it be the pasture-field. Especially is this the case when there are folding shutters like closet doors, covered over and made flush with the manger and hay-rack, at all times except when the

horse is feeding. By this plan no projection offers for him to take hold of by his mouth in order to suck air into the stomach. Thus, with regular food and regular work, together with his home in a loose-box, the horse often entirely forgets his former very injurious habits. Again, the foot cannot get over the halter during the night, nor is the horse ever found cast, and unable to rise when the stableman enters in the morning; yet this is often seen when tied to the manger in the usual way.

The loose-box is certainly a remedy for many of the faults and ills to which horses are liable, particularly some of the vices in the stable and those affections of the joints arising from narrow stalls and hard work.

THE DISADVANTAGES of loose-boxes, if disadvantages we may call them, when compared with the advantages just detailed, are not many, when properly considered. To the minds of some persons, however, they will be considerable, when taking into account the extra quantity of straw for litter or bedding that is required, and the fact that the space for one box will make two stalls. These perhaps are sufficient to condemn them, if economy be the rule for estimation in such matters.

The "quarters" (hips) of horses during the night will frequently be found to be badly stained from lying in every position on their excretions evacuated over the bedding in all parts of the box. This, however, is not always the case, for many horses are very cleanly in their habits, as is

often observed by the manure being deposited in a corner or given place.

The liability of horses soiling themselves is one of the chief objections of the stableman to the use of loose-boxes, while those of the owner are, the extra space occupied by the box, and the greater amount of bedding required to cover it.

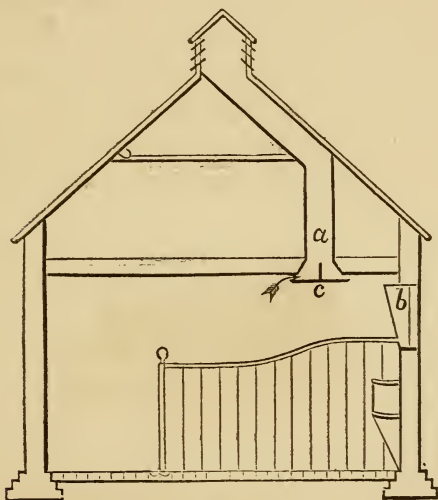
Where the stableman is allowed the manure-money, little fault will be found with the boxes, because of the greater conversion of straw into manure to be tossed into the dung-pit to his special advantage.

THE VENTILATION of stables should in all cases be so managed that draughts of cold air will be prevented from blowing against any of the horses. All stables, however, are not sufficiently and properly ventilated, nor is there a fixed form of ventilation adopted in our stables, although it does not necessarily follow that all our fine horses are suffering from contaminated air and foul gases.

Where the superficial area and height are great, and with few horses in the stable to generate foul air, little ventilation will be required. But it is in the crowded and small stables that we find imperfect ventilation. It is now admitted that no stable should have less than from 800 to 1000 cubic feet for each horse, when confined in stalls, and from 1300 to 1500 for each loose-box.

A very airy stable is generally so high that it is difficult in winter to keep it comfortable for either man or horse. To obviate this difficulty, we introduce a drawing of a ven-

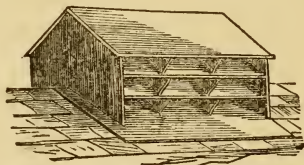
tilating shaft, which is admissible to all or every variety of stable, without occupying much space or costing a great deal of money for the material and construction; and, moreover, its utility rests upon true principles of ventilation by its situation and capacity to carry off the foul air,



Ventilating Shaft.

presuming always that sufficient air is admitted into the stable nearer the ground by the doors and windows, and registers placed in the walls. These registers or *louvres* are made on the same principle as those in dwellings where furnaces are used. Instead of a multiplicity of tubes in a stable corresponding to the number of horses, one will answer, if of sufficient capacity and properly placed, with its mouth

entering into the stall through the ceiling. Thus it will be seen that when one of these ventilating shafts is in place, a constant current is kept up between it and the registers below. This ventilator is of wood, made like a square funnel, carried up through the hay-loft or upper portion of the stable and the roof to the outside, and to prevent a down draught of air, snow, or rain, a "cowl," sometimes called an "archimedian ventilator," turning with the wind, is placed on top of the end of the shaft. For this purpose, one made of wood, and covered with sheet tin or zinc, like the pattern here represented, will answer all pur-



Head of Shaft.

poses. It will be readily recognised from its shape, so often seen in many parts of the country upon the roofs of buildings.

In a badly-ventilated stable, in the fall or spring of the year, its inmates will be fevered and sick. Coughs, colds, lung fever, scratches, grease, influenza, farcy, glanders, and other zymotic affections, are some of the concomitants of impure air in ill-ventilated places. Pure air is so indispensable to animal life, that a high condition of health

cannot long be maintained without its agency. The Black Hole, at Calcutta is an admonition in favor of proper or sufficient ventilation.

The horses which were confined only for a few hours on board of ships in the military expeditions, sent out by the British government to Quiberon and Varna, when the storm compelled the hatches to be put down, were almost invariably affected with glanders. We mention these occurrences, because Mr. A. B. Allen, editor of Stewart's book, affects to doubt that bad ventilation could produce those affections amongst the horses on board, by stating as his opinion, that the animals were diseased when put on the ships. Mr. Stewart was right in his remarks on the cause of the sickness; and Mr. Allen has simply shown, that he is incapable of tracing effect to its cause when he penned his assertion, doubting the opinion of a man who, in his day, had but few equals as a veterinary surgeon and writer.

Moreover, the views expressed by Mr. Stewart thirty years ago, are substantiated by science and experience at the present day. The analyses of impure and pure air have shown us a difference, that few persons, even in our time have anticipated. The fact is, that the condensed air of a crowded place where animals are kept, gives a deposit, which, if allowed to remain on the walls and fixtures for a few days, forms a solid, thick, glutinous mass, having a strong odor of animal matter, which, if examined by the microscope, is seen to undergo a remarkable change, by its

being converted into a vegetable growth, which is followed by the production of innumerable animalcules; a clear proof that it contains organic matter, otherwise it could not nourish organic beings. This is the result of the beautiful experiments of Dr. Angus Smith, where he showed how the lungs and skin gave out organic matter, which is in itself a deadly poison, producing zymotic and epidemic disease according to its strength. So potent is it for injury, that if a drop of the liquid matter obtained by the condensation of the air of a foul place be introduced into the vein of a dog, it will produce death with the usual phenomena of typhus fever. Ventilation and cleanliness are the only remedies for this evil, acting not as miracles, but in accordance with natural laws, the disobedience of which is sickness, and perhaps premature death.

THE LIGHTING of stables is a matter of much moment for the maintenance of health, and the prevention of disease among men and horses. We are told that institutions of the old world can show by statistics, the immunity from disease of the inmates on the light side of the building, while those confined on the dark side are more frequently affected, and more liable to sickness. The lighting of stables, like other buildings in large cities, is at all times or situations no easy matter, as was mentioned when speaking of windows. There seems to be an inherent prejudice existing against stables with lights facing, and the horses looking towards the dwellings or property of others not interested in the stable or its stock. To obviate this diffi-

culty, let the windows already shown be adopted, or borrow from the heavens by means of skylights, either fixed or movable. Where ventilation is good, immovable skylights will answer, but when this is not the case, the lights may be made movable by hinges, with cords by which to open and shut them at will, or during storms. A dark stable is usually a dirty and ill-ventilated one, prone to produce diseases of a typhoid or low condition of the *vis vitæ*. The light of the sun admitted into a stable, is as potent in preserving animals in health, as darkness is in the cause of decay and disease. The *dose* of sunshine is as regularly prescribed, and with as much benefit by the physician in certain affections, as any article in the pharmacopœia.

THE TEMPERATURE is an important matter in the management of places where animals are kept, yet the thermometer is an instrument seldom consulted, even if it finds a place. This should not be, especially in a climate such as ours, where we have the mercury at zero at one hour of the day, and at another 20° to 30° above it. The difficulty in regulating the temperature, or rather in keeping the degree of heat in winter up to the summer standard, is more apparent than real, even if it were necessary.

The stable temperature of summer being from 70° to 90°, would obviously not only be unnecessary, but highly injurious to the horses in winter, with the thermometer indicating zero in the open air. Coughs, colds, staring coats and chills, swelled legs, and a train of other ills, would be of constant occurrence, and some of the horses

perhaps, like the exotic or hot-house plant, would succumb to the inexorable law of nature, when by accident or otherwise they were exposed to the frosts and chilling blasts of December. In winter, the temperature of the stable for safety and comfort to the horses when out-doors, should not exceed 40° to 50° of Fahrenheit's thermometer.

But the groom will say the coats on the horses will not lie well. What of that, when it is a provision of nature to give them a coat for protection? and moreover, in winter horses are even more able to do their work with the long coat of hair on, than they are with the short and glossy one in summer. The greater the heat of the stable in winter, the more tender will the horses be, and consequently the greater the liability to disease. But in our desire to avoid unnecessary exposure of the horse, care should be taken not to have the temperature too low; for then the horses will lose condition, and consume more food to keep them in flesh or working order and to supply the caloric of the body required in a greater degree when exposed or stabled in too low a temperature.

The risk of disease being produced in horses by sudden transition from heat to cold, is by no means so great in summer as the sudden exposure to the cold from the heated stable in winter; bearing in mind, however, that from cold to heat is as prolific in the production of disease as the reverse. But as we have said, the risk is not so great in summer, from the difficulty or almost impossibility of finding a situation in mid-summer, except it be in a draught

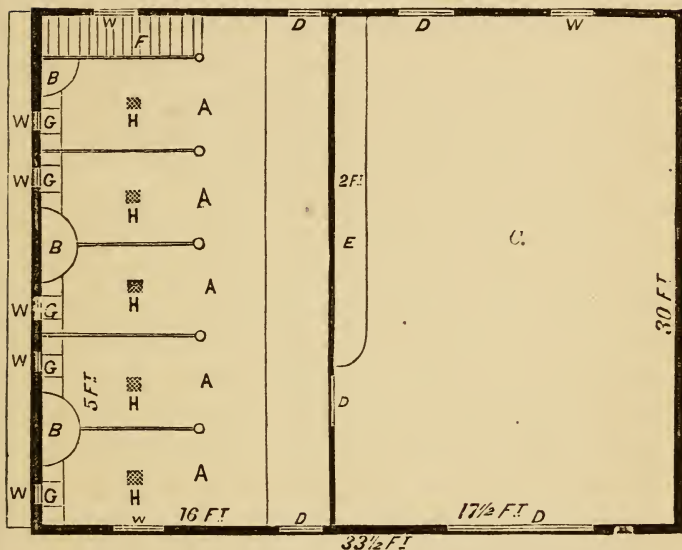
between two doors, where the cold would be such as to give rise to disease. This, then, is the chief reason of the more perfect immunity from chills, leading to thoracic diseases in summer, amongst horses, and at the same time illustrates why it is that from the heated stable in winter, horses are more subject to influenza, pleurisy, pneumonia, &c. How necessary, then, is it, that a thermometer, properly protected from injury, should be placed in every stable where valuable horses are kept, and the keeper instructed in its use—charging him that the mercury be kept at a given place in the tube during the day, and at something higher during the night? The standard or relation of the heat of the stable to the open air at all seasons of the year, night and day, is so difficult to attain and control, that we could only approximate to it were an attempt made to give figures; but we would say that the stable should be 10° to 20° warmer in winter than the open air, and in summer perhaps as much cooler, which can only be done by door or window currents of air, or placing horses underground in cellar stables, with a northern exposure of the building, or where the rays of the sun do not strike its walls.

THE SLEEPING-ROOM over the stable is of so much importance in stable management, when properly conducted in its various details, that few persons will run the risk of their horses getting loose from their stalls during the night, without some one in the building to secure them before any injury is done to horse or stable by kicking and biting, as is often the case, when no one is on the premises to inter-

fere. How often is it that the horse is attacked with windy colic, unknown to any one during the night, and is found dead in the stable in the morning—the halter broken—the stable injured, and not unfrequently others of the horses' legs bruised, broken and swollen, from kicks received from the sick horse in his agonizing struggles? To enumerate the various accidents happening to horses during the night, that could be avoided by a person sleeping over the stable, would be unnecessary, and take up too much of our space. Therefore, we would enjoin upon the owners of fine horses to have a sleeping-room provided in the stable, where all unusual sounds could be heard by its occupant, and accidents thereby be prevented. This is the only security for the night, where horses are kept. The stranger on the street or the patrolman on his beat, will very seldom pay much attention to the sounds of the plunging and kicking of the horses in a stable, though the animals may be valuable; and perhaps the struggle for life itself will in the morning find one or more of them dead or disabled. We have known several instances, where during the night, neighbors have gone in search of the owner or his stableman, to inform them of unusual sounds coming from the stable, and were thus instrumental in preventing accident and saving life.

THE CARRIAGE-HOUSE OR ROOM is mostly under the same roof with the stable, and divided from it by a partition of boards, bricks, or lime and plaster; a door for communication being made in the manner or place as exhibited in the ground plan of a stable here presented, capable of

holding five horses, three ordinary sized carriages, harness, and saddles sufficient for the establishment.



GROUND PLAN OF PHILLIPS'S STABLE.—A, Stalls; B, Hay-rack; C, Carriage-house; D, Doors; E, Closet for harness, with glass doors; F, Stairs to the hay-loft, &c.; G, Manger; H, Stench-trap; W, Windows.

There is nothing suggestive about the coach-house requiring notice, except that it be kept dry and clean, and that the communicating door be always kept closed, as the ammonia and gas from the horses in the stable are very injurious to the paint and varnish on the carriages. For the purpose of heating and keeping this apartment dry, we will, when speaking of an apparatus for the steaming of feed for the horses, refer to a plan that can be adopted

without the use of the ordinary stove now in common use. As elsewhere stated, a portion of this section of the stable requires to be flagged or paved with stone or brick, upon which the carriage stands when it is being washed. This portion of the floor also should be sloped inward from its margins to the centre, where is placed an iron rack or perforated plate, through which the waste water falls into the proper channel leading to the sewer or tank.

THE HARNESS-ROOM OR CLOSET is the third division or apartment on the ground-floor of the stable, and requires no special remark, further than that all such places should be kept clean, dry, and with an ample supply of wooden pins or iron hooks upon which to hang the harness. The harness-closets should, for dryness and cleanliness, be a portion of the carriage-house where the influences of the stable cannot reach its contents; for the gases of stables are extremely injurious to carriage-ropes, mats, and leather of all kinds. Indeed, the harness-room may, in some instances at least, be properly called the "smoking-room;" and for which purpose, when it has a place for everything and everything in its place, no valid argument or objection can be raised against such use, but something may be urged in its favor, by insuring for it and all that is in it a more tidy appearance than perhaps would otherwise be accorded to it at all times were it exclusively used for harness and saddles.

CHAPTER II.

STABLES OF DIFFERENT KINDS.

The Club, Livery, Sale, Racing, Railroad, and Farm Stables.

THE variety of stables that we now propose to lay under contribution cannot, from their diversity, be described as *one*, or as a sample of its class, even in one city or town, not to speak of a much greater disparity when embracing the whole of the country. To attempt to describe a livery or sale stable, as it appears or is managed in one part of the city, would be a work of supererogation, as it would or could not apply to others differently situated and managed. To the groom more than to any other agency may be ascribed the uniformity of management in the stable of the gentleman throughout the country, and to the architect and builder, together with other circumstances, such as the means or taste of the owner, do we ascribe the uniformity and style of stables in one city and the difference which may exist in the stables of another.

The stable and its management claiming the most perfection in our view of what a stable and proper care of a

horse should be, and next to that of the gentleman, is the

CLUB STABLE,

which is so called, because a number of gentlemen, each having but one or two horses, unite together in keeping it, because of the difficulty of procuring a proper place where the best of care can be given outside of a private stable; or it may be with a desire for privacy, which is not accorded to them at a livery stable. In some instances it is the greater protection of the purse that has led to the establishment of the club stable. This last, of itself, is no inconsiderable matter, remembering as we do, the extravagant charges at livery for the keep of horses, and the kind of care and protection which in some livery stables is given to them—which is not commensurate with the present charges of from thirty to thirty-five dollars a month per horse, while oats are selling at from sixty-five to seventy cents per bushel. It would be an easy matter to estimate to a cent the difference of profit and loss resulting from club and livery stabling—if we could but know the rental or interest on the money invested in the purchase of the club stable, as well as on how many persons the pro rata would have to be assessed. We are inclined, however, on the side of profit, not to speak of other matters pertaining to the club, to give preference to this kind of stabling. A horse can be fed on any particular kind of feed, and in any quantity the owner may desire, which can only be

done in the private and club stable. Indeed, we can urge no good reason against this system of stabling, as it is preferable under all circumstances to any other plan now in use.

For the guidance of those who may contemplate an association of this kind, we refer to the following series of rules and regulations, well adapted for the government of a club stable. So good are they that they have stood the test of time, and given satisfaction to horsemen for many years. Though (by provision) any article may be changed when found necessary, yet to this date they remain intact.

PREAMBLE.

We, the subscribers, have formed ourselves into an association for the purpose of keeping a stable, and for the government thereof, have agreed upon the following rules and regulations, to wit:—

ARTICLE I.

The style and title of our association shall be known as the ——— Club Stable.

ARTICLE II.

A regular stated meeting of the members shall be held at the stable, on the — of every month. Notice shall be posted in the stable — days previous to meeting, and each member failing to attend shall be fined \$—, if not present — minutes after the time of meeting.

ARTICLE III.

——— members shall constitute a quorum for the transaction of business, and a chairman and secretary shall be chosen at each meeting.

ARTICLE IV.

The number of members and stalls, and the number of vehicles to each stall. The purpose of the association being entirely for the keeping of horses, and vehicles for pleasure, no person keeping cars, carts, or wagons for hire, nor shall any doctor, be entitled to become a member of this association.

ARTICLE V.

No person shall be admitted a member of this association, unless he shall receive two-thirds of the votes of the members present, nor shall any member be expelled unless two-thirds of the members present shall vote for expulsion. The vote upon election or expulsion shall be by ballot. Upon the election of a member, he shall pay \$— initiation fee.

ARTICLE VI.

A caterer shall be elected from among the number, who shall continue in office till his resignation or dismissal for non-attendance to his duties.

ARTICLE VII.

It shall be the caterer's duty to procure provender, to hire and superintend the hostlers, to receive the monthly assessments and fines, to give notice of the monthly meetings, to keep accounts of all receipts and expenditures, and to present said account at each regular meeting.

ARTICLE VIII.

At the regular meeting, the assessments for the keep of each horse for the ensuing month shall be fixed. It shall be the duty of each member to pay his proportion to the caterer within one week from the time of said meeting, and on failing to do so shall be subject to a fine of \$— for each horse, which shall be doubled each week until paid.

ARTICLE IX.

Each horse shall receive an equal quantity of food, and in case any member shall desire a larger quantity given his horse, he shall be charged with the same; but no allowance shall be made for feeding less than the regular quantity. If any member shall remove his horse for any time exceeding one week, an allowance for feed shall be made on his assessment, provided he gives the caterer notice at the time the horse leaves and returns.

ARTICLE X.

No horse having a contagious disease will be allowed in the stable, and it shall be the duty of the owner of said horse to remove him as soon as the same is known, and should he refuse, a meeting of the members shall be called by the caterer, when steps shall be taken for his immediate removal, and at the next regular meeting the said member shall be expelled.

ARTICLE XI.

In order to settle misunderstandings between two members in matters appertaining to the stable, each shall choose a member of the association, by whom a third shall be chosen, who shall act as arbitrators, and after an impartial hearing of the matter in dispute, their decision shall be binding.

ARTICLE XII.

Any person wishing to resign from the association shall give written notice to the caterer at least one week prior to the regular meeting, and then, if his proportion of expenses be fully paid, his resignation shall be accepted, and the stall disposed of by the association to such party as may after — weeks previous to the regular meeting receive two-thirds of the votes of the members present, thereby becoming a member.

ARTICLE XIII.

In case a member shall sell his stall and propose the party purchasing it in his place for membership, — weeks' notice must be given. In case said party shall not be elected, then the association reserves the right of taking said stall at a valuation by referees appointed, as in article eleven. The referee of the association shall be selected at the regular meeting. In case of expulsion, the stall shall be taken by the association, at a valuation by the referees selected as above.

ARTICLE XIV.

No member is allowed to give a fee or perquisite to the hostlers, their wages being a full equivalent for their services.

ARTICLE XV.

No member shall give or sell the use of his stall to a person not a member of this association, unless he obtains the consent of — members, and then at the regular meeting, if such assent is not confirmed by two-thirds of the votes of the members present, such horse must be removed. In case of refusal to remove by said member, proceedings must be taken as in Article X.

ARTICLE XVI.

Should any member refuse to comply with these articles he may be expelled.

ARTICLE XVII.

Any of the foregoing articles may be altered or amended and new articles introduced, with the consent of two-thirds of the members present.

Any person who does not object to an agreement such as is embraced in the articles just quoted, and possessed with a reasonable amount of sociability and judgment of

human nature, cannot fail to find everything well suited to the care of his horses and carriage, in a stable conducted by gentlemen willing to be guided by such provisions of stable management, having the control of feeding, grooming, &c., with power of dismissing an incompetent person employed, and the substitution of a more accomplished one.

An establishment so conducted is as comfortable for the owner and his horse, and as exclusive as though in a private stable, and at a cost much less than in any other stable or by any other plan. A better class of grooms is always to be found than is seen in the livery stable, which, to speak the truth, are the lowest kind of persons, with no responsibility, and usually never to be relied upon. Even the hand in the purse-pocket fails to produce service in a satisfactory manner: either horse, harness, or carriage will be neglected. The partiality of the livery-stable groom for the liberal person to the injury of others, finds no place in the stables of the club or private gentleman. There is no safety for a first-class horse, carriage, &c., outside of the club and private establishment of the owner, managed and superintended by direction of a superior mind.

The club stable, as conducted in Philadelphia, possesses all the advantages of livery stables, with few of their drawbacks, and with all the advantages of the stable of the gentleman, and at a much less expense or trouble to himself in the daily duty of a personal visit, and in some instances of an examination of the affairs of the stable. The pay of the hostlers or grooms, the rent of the stable,

and all matters connected therewith, except it be the feed, is assessed in equal proportions among the members, and no more is paid for the hay, oats, &c., than is consumed or fed to the horse. Thus it will be seen that for a small expense, a gentleman can keep his horse with the advantages of a private stable, escape the extortions and discomforts of a livery stable, and insure proper attention and comfort to his horse and care for his carriage and harness.

THE LIVERY STABLE is an institution of our country that we cannot boast of either in buildings, accommodations for horses, or their safety. If, as is already shown, the superiority of horse management exists with us in the stable of the private gentleman, or the association of the club is above that of the cities of the Old World, the same claim cannot be advanced in favor of the livery stables of the New World. The livery stable is a place where horses are kept at a certain rate per horse, by the day, week, or month. If the accommodations for the horse and the care of harness and carriage were as well defined as the charge for them, perhaps not much could be truthfully said against them. But, not unlike the horse cars on a stormy night, "more room inside" when not a foot of standing-place can be had, crowding and jostling in one confused mass together, true to the principles of the avaricious, and of some corporations, like unto the "Old Sexton," their song always is

"We gather them in, we gather them in,"

until at last there is room for none, and discomfort for all. It may be asked why the livery system of keeping horses is so distasteful to us? This can only be answered by personal experience and observation, and comparison of other establishments of a more private character. It is an always understood principle of trade, that a person gets what he pays for, whether it be a peck of oats or a bale of goods; but in the feed of a horse at livery, the promise must be taken for the performance—the shadow for the substance.

There are, however, some good livery stables amongst us, but they are an exception; and if it were not considered invidious, we would with pleasure give the names and locations of them in the principal cities of the seaboard. This only can be the excuse for our silence in the exceptions just alluded to. To have a horse at livery is to subject him to sickness brought to the stable by horses from all parts of the country, and suffering from infectious and contagious diseases. This is one explanation of the prevalence of epizöotic disease in the livery stable, when found or seen nowhere else at the same time. The livery stable, like the tenement house, is the nursery for the production of disease. The horse for sale or exchange is here brought to be disposed of, not unusually diseased, and no one daring to say a word against it or to inform the patrons of the stable, till other horses in the livery have the same disease; then the veterinary surgeon is sent for, and is perhaps the first to detect the source

from whence the sickness came. When the mischief is done, all sorts of excuses are made; "no one to blame;" the head man declares himself entirely ignorant of the bringing of such a horse to the stable, and by way of sympathy for the loss, a new horse is at once offered that would just suit instead of the one lost. The law of supply and demand in the livery stable is well understood. We may be wrong, but have often said that it is not the desire of the keeper of a livery, sale, or exchange stable, that the horse of a gentleman of means (having use and a taste for horses) should live and get over whatever disease the animal may have had, as an opening is thus made for a sale which could not be effected had it lived and got entirely well again. There are more horses destroyed from want of care and good management in the livery, sale, or exchange stables of Philadelphia, than from all other places and stables combined, but from what cause, we would have others inquire. The great expense of horse feed; the over-crowded condition of the place; bad ventilation, light and drainage; lazy, indolent, drunken, low-priced men kept for grooms, in some of these stables, are sufficient to create disease among horses. At livery, almost all the pleasure-horses leave the stable at one or near the same time and return about the same—thus throwing too many warm and exhausted horses upon the too few and inexperienced hands. Some are left to cool in the open air, or perhaps in a draught—a chill is produced, lung fever sets in, and death or a thick-winded horse is the consequence.

We have said nothing as to the care the harness and carriages receive in such places, the jarring them together, scratching the paint and varnish, trampling of the shafts by the feet of horses, and men totally indifferent to all surroundings—suggestive of an understanding with the harness-maker and carriage-builder.

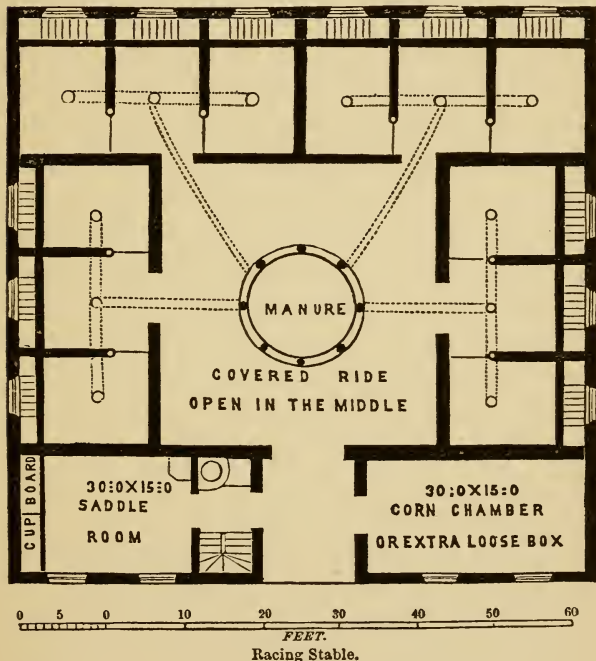
The subject of livery stables is not an interesting one, and we feel sorry that we can see nothing in their management to be recommended and adopted in the care of horses and carriages, while there is much to avoid and condemn. A remedy for this state of things in the livery stable can only be brought about by a stricter observance of those laws of nature, the violation of which entails their just and sure punishment, but unfortunately not always upon the cause of their violation.

The keeper must be a man of temperate, business habits, conducting his stable affairs honestly and impartially toward his patrons. A set of wise and good rules should be framed and enforced, under pain of dismissal for disobedience of them; employ and pay good and capable stablemen; allow the full measure of feed to the horses, and if this cannot be profitably done at the prices charged, make this known in an intelligible manner to the owners, and if assured of good treatment (which is true economy) each will pay better prices, and thus insure the comfort of his favorite horse. Rather reach the pocket of a gentleman by a plain statement than by the stomach of a hungry horse; make the patrons feel by word and deed that their

horses are as well cared for in his stable, so far as feed and comfort are concerned, as in the stable of the owner. The advantages alluded to in our review of the club stable, are not for the owners of several horses, but to such as own but one horse—as the physician, the baker, the grocer, or the butcher—as it saves the expense of a separate stable and groom to take care of the animal. The putting a horse in a livery stable for such, may be the best and cheapest way, as the club stable excludes physicians and others liable to be called upon at almost any time during the day or night. There is no remedy for this but to put up with the livery system, or to form clubs for themselves, and be guided by such rules as the peculiar nature of the work for their horses requires.

THE RACING STABLE may also be called the training stable, where horses are not only kept for racing, but also training for the race, road, &c. The racing stable in all particulars is not unlike other large stables, only being situated out of the city, and alongside or convenient to a racing course or track. The Point Breeze stables and course, situated outside of Philadelphia; the course and stables on Long Island; the more private one of Mr. Jerome of New York, are good examples of what is meant by a racing stable. The latter we believe is used for running-horses, the others for the trotting-horse. There is no uniformity in the style of buildings, nor the management of horses in such establishments. We have seen none of these stables, but an improvement in them could be made, and with this

purpose in view, we present a ground plan possessing some advantages over most of those in use for such purpose. The race-horse should always be allowed a loose-box, to insure absolute and entire rest after severe exertion,



to enable him to recover in the shortest time from his fatigue. The plan, as will be seen, is divided into four separate stables, thirty-six feet long and eighteen wide. The proportions of a loose-box, for the tired racer or horse

that may at any moment be called upon for the exercise of all its powers, should be from sixteen to eighteen feet long, by about twelve feet wide. Horses of slower and more regular work will not require so large a box.

Sometimes there are two men in charge of a single horse, feeding, grooming, exercising, or training it, in a way each individual thinks best. For our part, we have seldom seen a horse sent to such places, and managed according to the whim of the trainer, return improved in health, vigor, or speed; but can recall many instances where good horses have been ruined in wind and limb by the injudicious and often cruel manner of the trainer, in the endeavor to exact a rate of speed that by nature the animal was never designed to perform. Yet the man of the sulky and jockey-cap could not see how this could be so. All horses are not Flora Temples or Dexters, and to credit the man who through force of circumstances became the trainer of such fast animals with their great speed is absurd, as he would be performing an impossibility, and laying claim to a power that can never be attained but by the hand of Nature, proper selection and judicious breeding. We do not, however, say that good and careful training has nothing to do with the development of speed; the training of the pugilist and the acrobat for their subsequent performances would dispel such a delusion. But at the same time, all men are not fitted by nature to become experts at such callings, nor are all horses that find their way to the racing or training stable adapted to perform their mile in 2.40, even with the

aid of excellent and well adapted training for the formation and physical powers of the horse.

The breed, formation, condition, and physical powers of all horses should be well studied and understood before undue exertion is exacted of, or cruelty inflicted on any horse sent to be trained to a certain rate of speed for the race or road. To prepare horses for severe exertion, it is a practice to cause the horse to sweat profusely in order to make wind and limb fine. To this, when properly carried out, we cannot object, but we do object to the severe exertion exacted from the horse at the expense of nervous energy, which should be possessed by every horse in order to make a trotter of him. The hoods and heavy blankets may all be necessary to cause sweating, but not without exertion and injury to both feet and legs. All this may be avoided by a judicious use of the Turkish bath, thus saving the strength and scarcely disturbing or causing an increased action of the heart. Indeed, the sweating process is produced by the bath to any extent or degree, without in the least affecting the powers of the horse. This is the proper way to prepare horses for severe exertion without injury. Repeated doses of aloes were, and we believe are still used, for the preparation of the hunter and racer in some establishments in Europe; but this is fast giving place to a heated box or Turkish bath, which process will be treated of in another place, and to which attention should be given. The extreme exertion demanded from some horses while under training is not only unneces-

sary, but even cruel, when we consider that it is exacted at and during a time, when by the nature of animal life, fatigue and exhaustion produces diaphoresis and consequent weakness.

THE RAILROAD STABLES here treated of are those in use by horse or city street car companies. They are of large dimensions and well adapted for such purposes, being provided with almost every contrivance to save labor and promote the health of the horse. The steam grist or corn-mill, chaff or hay-cutter, are among some of the fixtures to be found in such establishments. Although fitted up expressly for the comfort of the horse, we are not aware that any of them have been provided with a feed-steaming apparatus, by which feed would be made palatable to the animal, and profitable to the stockholders. We think this is an important omission, where so many hard-working horses are kept, as a large percentage can be saved by cooking, and the animals thus fed show an improved condition. Some persons may say that feed thus prepared is too soft for horses used for the city car or railroad work; this is an error, especially when the feed is prepared by steam, and not softened by diluting with water.

But to return to the city car stables. From their extent, construction, conveniences, and fine appearance, we are led to think of the great improvement over the old stage and omnibus stables of the past. The stables alone may not be the sole agency in keeping the horses in so excellent a condition, but they have a great deal to do with it. The

superior ventilation, light, and cleanliness of these places have almost banished glanders and farcy from our midst. Some of the poorer companies, however, are still unprovided with sufficient accommodations for their horses; and it is noticeable that the horses of such companies do not look so well, and are not as able to perform their work, although they are of precisely the same character.

We merely mention this to show that the cause of the debility of horses was not the work of drawing a lumbering omnibus along the cobble-paved streets, but was due to inferior stabling, as evinced by the superiority of the horses of well regulated roads over those badly regulated, and with inefficient and improper stabling.

It is the general remark of horsemen, that the stock of horses on certain lines of road look well, while those on others are poor and bad, although the average number of miles travelled by each car horse is about twenty-four each day of the week; and moreover those that look best are on roads where the cars are filled nearly all the time, and are consequently more burthensome to the horses.

This difference in the condition of horses similarly employed cannot be set down to the extra work performed, but to the better adaptation of the stable to its inmates. The care bestowed would make a difference, but we believe the feed and care to be about the same, as from 12 to 15 horses in car stables are intrusted to the care of one man. The only difference between them in this particular is, that in some stables the feed is measured and served out by one

person to all the horses in the stable; and in others, each man mixes and feeds the horses of which he has the care. Thus it will be seen that it is at least as much for the good of horses so employed that they should be provided with good stabling, as that they should be lightly worked to keep up a certain condition and fitness for work, or good appearance. To keep a horse and give him light work will not insure a high standard of good health if he be kept in a dark, damp, ill-ventilated and badly constructed place called a stable.

We feel that it is not necessary to say much about the management of city car stables, and perhaps would not have alluded to them at all, but for the good condition of the horses which are stabled in some of them, and to which we often refer when illustrating the effects of good stabling and mixed feed, that form the food of most of them. The feed, as already hinted at, is what some persons call mixed, chopped, or soft feed, and which some stablemen, particularly draymen and carters have an aversion to, upon the ground that it is too soft; but if their true thoughts were known, their objections would be found in the trouble of cutting the hay or straw, and mixing it with water and corn-meal during the dinner hour, or when they come to the stable after the day's work is over. This can be the only true reason, because chopped feed, when properly prepared, and of proper, sound materials, is the safest, strongest and most economical feed that can be given to a hard-worked horse, not of too fast work. The mixture

given to the horses of one of the principal lines in Philadelphia is corn-meal fifteen pounds, cut hay sufficient to give bulk to the mess, a little salt, and water enough to merely moisten the mixture. This quantity is divided into three feeds, one given in the morning, the others at noon and night. Some horses do not eat so much; but this is the average quantity that a horse will eat during the twenty-four hours, when travelling twenty-four miles daily and attached to street cars. The mode of feeding car horses, is referred to by us as being the best adapted to horses travelling at the rate of from six to eight miles in the hour. For horses of faster work, one such feed should be allowed, and that in the evening after all work is done, for the day and night. Some horses of poor appetite are in addition allowed a sprinkling of bran over the mixture, to whet their appetite and induce them to eat their feed. We do not think that any class of horses for any kind of work can be fed more cheaply than on the feed of car horses, and with the same condition and flesh maintained. Chemists may tell us that maize or Indian corn produces caloric or heat in the body, and that oats are wanted to produce muscle, which we have here without the aid of oats, wheat, or barley.

THE FARM STABLE must be accepted as a building of many devices, shapes and appearances, situated often in places badly adapted for it, and often not at all suited for the safe keeping of horses. The means of the farmer have in most instances been the only consideration, when it

was devised and built; for if this were not the case, it would not to day almost throughout the whole extent of the country be a house holding almost every product, utensil, and species of animal on the farm. The stable of the farm is a series of houses or apartments within a house, and used for as many purposes, however diverse from one another; thus, in one building are the hay and straw apartments, the granary, carriages, harness, and all the farm implements in the upper portion of the stable, called the barn, while in the lower will be found the horses, oxen, sheep, cows and calves. The stables of most farmers are not only unworthy of the name, but are not at all suited for the purpose of keeping horses in safety or health; and were it not for the nature of the farm horse's work (on account of the poor accommodations given him in the so-called stable), he would be the victim of malignant diseases. On a common level, without a partition, stand the oxen, cows and horses, breathing the same contaminated air, in a place often without ventilation and light, and generally reeking with the gases arising from damp and decaying manure.

The horse while within doors is compelled to stand or lie down upon the accumulations of months. This is a poor arrangement, and could be easily abolished by merely systematizing the labor of the day, and without extra expense. The manure has at some time or other to be removed; then why occupy a day or two every few months, when ten minutes each day before the morning meal would

do it? This evil of allowing the dung to lie for weeks and months among the horses' feet is but the force of a habit which the farmer and his hired man have acquired, to the injury of his horses' health, and the destruction of his harness-leather and carriage-paint.

The ventilation of farm stables can scarcely be called by that name, as the upper portion, filled with hay, straw, &c., effectually cuts off all communication with the roof of the barn, and thus natural ventilation is prevented. The air that is admitted by crevices in the lower walls is perhaps enough; but when inhaled by and expelled from the lungs, there is no upper opening through which it may ascend; hence all its impurities must settle, some on the walls and fixtures, to be again and again inhaled, until, from its weight of impurity, it is prevented floating in the air of the place. We have in Chapter I. already referred to the poison in this deposit, not as a curiosity in nature, but as something to be dreaded and avoided, through the instrumentality of ventilation or pure air and cleanliness in all places where animals are confined.

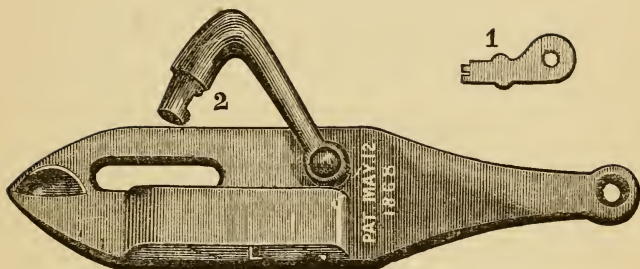
The folly of "carrying too many eggs in one basket" is no greater than that of the farmer in converting his stable into a tool-house, a barn, and a byre. Let the vivid lightning or the incendiary's torch strike this place, and what can be saved? In the confusion of the moment, you know not what to get out first—the horses, oxen, cows, grain, carriages, farm tools, or machinery. There is too much to do in the few moments that may be allowed on

such unfortunate occasions—"there are too many eggs in that basket."

Farmers may console themselves on the comparative immunity from fire in the country. This is no excuse for the present arrangements of the agriculturists' stables. In our experience and lifetime, many farm stables in Pennsylvania and New York have been consumed by fire from natural causes, the incendiary, or by accident, and nothing left of their contents but a charred and blackened mass, as an emphatic rebuke to such imperfect arrangements.

This condition of country stables should long ago have been remedied; but "better late than never." The excuse of poverty can no longer be the plea, in the face of the high prices for the products of the farm, which has enabled so many of them to pay off their mortgages.

COOLEY'S PATENT LOCK HASP.



The above cut represents a combination of lock and hasp for stable doors and other out-buildings. It is made of malleable iron, very strong, and can be used as a hasp and as a lock. It contains four tumblers, and can only be opened with a thin key, as represented by figure 1. It is peculiarly adapted to stable doors, as there is no long-handled key to be caught by the harness when horses are going in or out of the stable.

CHAPTER III.

DIETETICS, HYGIENE, AND REGIMEN.

Chemistry—Quality and Quantity of Food—Water—Oats—Corn.

BARON LIEBIG compares the bodies of animals to a locomotive engine, in which air, water, and fuel, working together, generate heat and power. The food is the fuel, without which the machinery would be useless. The food and water supply the material necessary to repair what is lost by wear and tear of the machine. He says there are three conditions necessary to constitute food of perfect quality: a certain quantity of albumen (a familiar illustration of which is the white of egg), furnishing an important constituent to the blood, and is also the material of all the plastic portions of the body—a proportion of heat-giving substances, chiefly appropriated in the vital process, and nutritive salts, without which the other two cannot give nourishment. Any one of these substances alone could not support life, and only in that food where they are

united is found perfect nourishment. The health of animal life depends on the proportion of the different kinds of food, both in quantity and quality. These proportions differing greatly in each animal, must be determined by the general state of health, and the nature and amount of daily work to be done.

It is a practicable problem for every one to solve, by careful observation, what quality and quantity is especially wanted or suited to each animal, in proportion to its condition and daily labor, for lengthening its life and promoting its powers. The daily work of each animal bears a relation to its muscular power, and this again depends on the nutrition it receives from the quality and quantity of food allowed, consumed, and assimilated.

The feed given to animals or beasts of burden should be in accordance with the labor performed. In order that the working power shall be kept up, the food must contain sufficient albumen to supply what is lost in the body. In some horses the amount of food required to be given at a time must be in proportion to the rapidity with which it can be assimilated. It therefore follows, that for hard work, horses should not be fed with bran-mashes and soft grass, which are too easily and rapidly assimilated, but with corn, oats, &c., which require a longer time to digest. But when horses are not hard worked or their strength not severely taxed, less corn or oats will be required.

Horses during a season of idleness can maintain perfect health with far less concentrated food, as corn, &c., than is

necessary in times of hard work. This seems to be well understood among horsemen of all grades; or, if it be not, how are we to account for the great diversity of the feeding of horses everywhere? The horse for pleasure, or for the family carriage of the gentleman, does not require the amount of food that is demanded by the horses attached to the scrapers of the contractors of the Pacific Railroad, which are fed five pounds of barley three times daily, with as much bunch or buffalo grass as they can eat at night. Horses consuming a less quantity of feed would not stand the work exacted from them, because of their faulty digestion and slow assimilation. A good measure of the value of the working properties of a horse is, the less feed eaten the less is he able to stand severe work. Thus we are often told by the owner of a horse, that if it could but eat twelve quarts of oats in the day, the animal could go faster, stand the exertion, and would be greatly increased in value; but as it is, the exertion of to-day destroys his speed and appetite on the morrow. This is one of the reasons why but about nine per cent. of the horses bought by a certain city railroad company in this city stand the work for any length of time. Thus the boiler cannot generate steam to keep the machinery long enough in motion. The carriage-horse used by ladies for carrying them to the shop, the opera, or the ball, requires but little feed, when we compare its work with that of the animal in the dray, railroad car, or business wagon.

The keeper of the livery stable is well aware of the

relation existing between the feed and the work of a horse, and charges an extra price for the keep of one that works ten to twelve hours in the twenty-four over the other that is at work about three to four, and many days are not worked at all.

In our climate, a difference in the kind of food should be made, not that the horse is just as susceptible to a change in his food at all times as man is, but in winter, feed capable of developing a greater degree of caloric or heat in the body is required. Corn produces heat, gives roundness to the body, and in cold weather should form a portion at least of the feed of horses. Chemists tell us that in winter oats make more muscle or flesh than corn, and therefore should form part of the feed of working-horses—the harder the work the greater the demand for oats. What are we to do or say in such matters, when science and experience do not agree as it seems they apparently and sometimes really do? Thus, hundreds of hard-working horses in Philadelphia are fed exclusively on corn-meal and cut hay, yet the body is fat and round, the muscles well developed and capable of great exertion, as can be seen in the horses of some of the city railroads, which are fed only with fifteen pounds of corn-meal divided into three meals, with cut hay, a little salt, and mixed with water. This feed will when well considered be not only excellent as a strong and healthy, but as a very economical one, costing for each horse daily not over thirty-five to forty cents, including hay and salt.

We can illustrate more fully the various plans of feeding, and the demands made for such diversity, by introducing to our readers the character and quantity of feed given the celebrated trotting-horse "Dexter," the property of Robert Bonner, Esq., New York, kept for his driving and pleasure, used we believe in single harness and attached to a light trotting-wagon, and driven from twelve to fifteen miles in the afternoon, but not every day. In the morning he is allowed all the water he will drink, after which two quarts of oats are given, and when eaten, half an hour's walking exercise is enforced; when he is brought home again (which is usually about 9 o'clock A. M.) he gets two more quarts of oats; but if no drive for the afternoon, half to three-quarters of an hour more exercise of a gentle nature is exacted, and at 1 o'clock P. M., two quarts of oats are fed, and in the afternoon if he be driven, which is about fifteen miles, on coming into the stable he is rubbed dry, a swallow of water is given, and from five to six pounds of hay is placed before him. If the work has been a little extra, he is treated to two quarts of oat-meal gruel, and when well cooled off, half a bucket of water and three quarts of oats, with two quarts of bran moistened with hot water. On days of great speed, the allowance of water is reduced.

Thus it is seen, that this pleasure horse is fed upon nine quarts of oats and two of bran, and from five to six pounds of hay, in the twenty-four hours, costing for oats about twenty cents per day; bran, say five cents; hay, seven

cents, making a total of thirty-two cents for feed. It will be observed that it costs within a few cents as much to feed a horse used for pleasure driving when oats are given, as it does to feed a hard-working horse on corn-meal; but it does not follow that a hard-worked horse could be kept in condition with nine quarts of oats per day, nor that the pleasure horse would require fifteen quarts of corn-meal a day to insure a good working condition. How difficult as well as unnecessary is it for us to fix a certain quantity and quality of food to be given to all horses, when age, condition, and work are not the same! This discrepancy, however, is, for the intelligent stableman, easily overcome by a little observation of the feeding capacity and condition of each individual horse under his care. It is safe to allow *some* horses of weak constitution to eat *all* the feed they can consume, and that will not be too much to maintain them in flesh and in working order; their appetites being the only measure required for daily use, at least during the season of work. The work is the regulator of the consumption of feed, as with such horses, the harder the work the less will they eat, and *vice versa*, when a limit to the quantity should be made.

The horses of railroad contractors and railroad companies, as a general average, get fifteen pounds of barley or corn-meal each day. It is found, however, that many animals will not eat so much, but others will eat much more than this allowance, and are much more able to perform their work—another confirmation of the necessary propor-

tion of the quantity of feed consumed to the amount of work exacted.

The greater the steam capacity of a boiler, the greater the power of the engine ; likewise, the more perfect digestion and quicker the assimilation of the food, so will the power of the horse be. Unfortunately, however, this relation of the amount and quality of food to the work demanded is not always properly understood or appreciated, because some persons argue, "no work, little feed," forgetting that the wear and tear of the system is always going on, and has to be repaired, work or no work, if the horse is to be kept in health and condition. All over this amount of feed may be kept back, and replaced when work is on hand.

The quantity and quality of food required for the keeping of a horse in health and flesh during idleness is as difficult to determine as fixing the amount of feed to be given to all horses of every work. A horse well-ribbed home, short-jointed, and of good disposition, will subsist on much less food than one long-sided, loose-jointed, and of irritable temper, whether in idleness or during work. This can only be ascribed to a more perfect, although perhaps not a more quickened assimilation in one class of animal over that of the other. Some animals will fatten on straw in the barn-yard, while others will starve, become diseased, and perhaps die from its effects.

The poor man with his one horse, upon which he and his family depend for their daily bread, should learn the im-

portant lesson, that to feed a certain formation of horse is an easy matter, when compared to the demands of another, and in nowise better adapted for work. To do a certain amount of work, the former horse will require less food than the latter, and, although he can do it with less food, it does not follow that he is not a good feeder and worker, or that it is requisite to feed him to the full amount of his consuming capacity. The young horse should not be fed with the same quality and quantity of food that is given to animals of eight, ten, or twelve years of age; hence he is not fit to work so hard. The feed of young animals should principally be soft, nutritious, and in greater bulk than that given to or required by older ones. This will prevent many diseases to which they are subject if fed with stimulating feed in small bulk or in high concentration.

To keep the old horse in condition and health, he must be fed on feed capable, to a great degree, of generating caloric in the body as well as of adding to the red corpuscles of the blood.

Horses suffering from spavin or disease of the joints of the legs, require a more generous diet than those in perfect condition.

The size of the pony and small sorts of horses should also be considered when proportioning their allowance of feed.

The brood-mare, when kept in the stable, demands some consideration, inasmuch as soft, nutritious, and bulky feed is best adapted to her condition, which requires fresh-cut

grass, clover, boiled turnips, carrots, &c., insuring a strong, healthy colt and a safe parturition.

The feed of the stallion, or entire horse, during the season of service, or when used for mares, should be full, nutritious, and somewhat stimulating, consisting of the plumpest and heaviest oats, some corn, and sound timothy hay occasionally, mixed with fresh-cut grass, to regulate the secretions and neutralize the effects of the heating of the body and blood by the stimulating feed.

The feeding of mules we notice only to say, that the full feeding of corn or oats that is usually fed to horses of ordinary work, will keep three working mules in excellent order if plenty of rough feed or hay be allowed them. They are good eaters of hay, not more so than horses, perhaps, but eat much less solid and expensive food.

The general principle for feeding horses is about as follows :—

Horses should be watered from a brook, pond, or river, and not from wells or springs, as the well water is hard and colder, while the running stream is soft and rather warm. The preference of horses is for the soft, even though it be muddy water, to that which is hard. Horses should be allowed in summer time at least four waterings a day, and half a bucketful at a time, and in winter a pailful may be allowed morning and evening, which is sufficient to assuage their thirst without causing them to bloat or puff up. Care, however, should be taken that the horse is not put to work immediately after drinking a full bucket of water,

especially if required to go fast, because digestion and severe exertion can never go on together, and moreover purging is apt to ensue. In some cases, broken wind or heaves is thus produced. Avoid giving warm or tepid water to horses that are often driven from home, because cold or well water will then perhaps be given them, which will be liable to produce a congestive chill, followed by lung fever, and in some cases colic. When horses are thus carefully watered, if one or more of them should refuse their accustomed food, something is wrong, and they should not be taken out of the stable to work, or driven further that day; but an examination should be made as to the cause, with a view to its removal.

OATS as a feed for horses are considered, by common consent, to be the best that can be used for such purpose, which is confirmed by the good condition of horses so fed, as well as by the chemical constituents produced from the oat. Happily, however, it is not obligatory that oats should be exclusively fed to horses, as their cost is frequently much enhanced by the smallness of the crop. On the contrary, the cold of winter generally demands a feed of greater heating power than can be obtained from this grain.

The standard weight of a bushel of oats is thirty-two pounds by law, but very rarely is this reached, especially for the last six or eight years, during which time the weight has been about twenty-six to twenty-eight pounds. In the purchase of oats, allowance can be claimed when

they weigh less than thirty-two pounds, and an increase in price is usually demanded by the seller for any excess.

Viewing oats as a feed in all their excellencies, we cannot be convinced but that they are an extravagant and very expensive feed, unless we could believe that light or poor oats are as good for horse feed as those which are heavy and plump.

European or Nova Scotian oats all seem to be fed alike—light or heavy, eight, ten, or twelve quarts—no allowance being made for their weight, and not unfrequently, also, without regard to the age, constitution, or work required of the animal. Horses thus treated cannot but be improperly fed—either too much or too little—forming thus the basis of disease of an exalted type when fed with heavy, and of a depressed kind when fed with light and poor oats.

We are well aware that we are laying siege to the citadel of constituted opinion, when the value of oats for feeding horses is called in question; but what can be said when we tell horsemen that no two samples of oats, even when of equal weight per bushel, will give the same analysis, nor contain the same amount of nutrition. In addition to this, we have a great variety of oats, all differing in value as a feed. Thus we have the common oat, the White, Poland, Early Angus, Hopetoun, Cumberland early, Tartarian, Potato, Sandy, Georgian, and many other kinds too numerous to mention. The weight and properties of each depend not so much on the variety as upon the season, climate and soil on which they are grown.

Yet, with all these discrepancies in the value of oats, they are still fed, not by the pound, but by the quart. Thus we see some horses kept in good working condition by feeding oats to them, but the major part demand an addition of Indian corn to supply the wear and tear of the system under ordinary work, and for this purpose some horsemen add one bushel of corn to four of oats.

It is the conviction of many who own a number of horses kept for work, that oats are deceptive, and not sufficient as a feed, with the usual allowance of hay combined. So extensively is this opinion held, that scarcely a hard working horse can be found that is now fed exclusively on oats and hay. The poverty of the oats in general is such that few horses can consume enough of them to supply the system with nourishment commensurate with the work performed. We know of carriage horses not even in daily use and which when in harness are not taken out of the city, but merely used for shopping and visiting purposes, which require, to keep them in something like respectable condition in flesh, about twenty-four quarts in the day, together with sixteen pounds of timothy hay, and occasionally a mixture of bran in addition. Yet with all this, they are not in better order than animals fed on corn-meal and cut hay, and moreover are not able to go faster or do harder work than those horses fed on corn-meal and cut hay. We are aware that these facts can never be reconciled with the theory of the chemist and the prejudices of the stablemen; nevertheless where such conflict occurs, as

it occasionally does, we are bound to decide in favor of well-founded experience.

We are told by foreign authority, that for a carriage or saddle horse, half a peck of sound oats, weighing forty-five pounds to the bushel, and eighteen pounds of good hay are sufficient, and with less hay an addition of a quarter of a peck more of oats will be required. It is added, however, that a horse required to work *harder* should have more both of oats and hay.

We will not presume to doubt the all-sufficiency of the above quantities, but can, without fear of contradiction assert that the same amount fed in bulk, will not keep a sixteen-hand carriage horse in good condition and working order in Philadelphia. With us, even a small fourteen-and-one-half-hand horse is not considered fit for good driving, unless he can consume twelve quarts of oats and from ten to twelve pounds of hay. In Great Britain, the oats are better, and the streets and roads are good, which may account for some of the difference. The climate and perhaps the constitution of the horses are better than with us, and if such be the case, it will also help to account for so small an allowance of oats to carriage horses. To keep carriage horses in good working condition, the chaff or hay-cutter and corn-meal are found to be as indispensable in the private stable of the gentleman as they are in the stable of the drayman, or of the railroad company with their hard-worked horses.

The following will illustrate still further the unreliability

of Pennsylvania oats as feed for our horses, both in regard to their efficacy and their economy. The report from the Honorable Commissioner of Agriculture for 1868, on the average production of the cereal crops of the country says, that 27.8 bushels to the acre is the amount, while in Great Britain the yield is 60 bushels. These figures of themselves clearly show how costly it is to feed horses with oats gathered from so many acres of land that could produce a larger and more substantial crop of corn, costing for horse feed less money, because of its sufficiency in keeping horses of hard work in excellent condition. We do not mean to advise the total exclusion of oats as a food from the stable, but to show that they can be readily substituted by a less costly and more nutritious feed. Oats when fed to old horses, should be ground or bruised to render them suitable for defective teeth, which cannot chew them when whole, and properly mix them with the saliva. To save the expense of a hay or straw-cutter as well as time and labor for cutting hay or straw into chaff, many stablemen mix oats with corn-meal, making the feed into sufficient bulk, thus supplying the place of cut hay. This may answer a good purpose, but is too costly a mixture.

CORN when cracked, or in the form of meal and mixed with material to give proper bulk, which in some degree is capable of neutralizing or destroying its heating properties when fed to horses, is not only a valuable and substantial, but also an economical feed, and can be with safety fed to all kinds of horses of all manner of work. This has

been clearly demonstrated eight to ten years ago, on the almost complete failure of the oat crop, and ever since it continues the principal feed of those horses that are kept for hard-work, the feed of which has been made matter of commercial calculation.

The experience of feeders of stock of all kinds has shown that the fattening properties of Indian corn are surprisingly great, and to be preferred for this purpose to everything else; moreover, it is preferred by most animals to almost every other kind of feed. It is rich in oil of a very pleasant kind, which is obtained in the distillation for making whiskey and alcohol. The following analysis of Indian corn according to Dana, made for the purpose of comparing its nutritive and fat-forming qualities with those of some other articles used for feeding, shows the great difference of what Dr. Dana calls the fat-forming principles in favor of corn, and does not surprise us, from what we have seen of its effects when fed to animals

ANALYSIS OF CORN.

	Corn, 100 lbs.
Containing of flesh-forming principles—gluten, albumen, &c.	1.26
Fat-forming principles — gum, starch, sugar, woody fibre, oil, &c.	88.43
Water	9.
Salts	1.31
	<hr/> 100.

The above table of analysis goes far in establishing the

soundness of the views entertained by Baussingalt and Pagen that plants are valuable for giving fat to animals only in proportion to the vegetable oils, ready formed, which such plants contain.

To make a comparison of the feeding qualities of oats with corn, we give the following table by M. Saussure :

ANALYSIS OF OATS.

							Ashes of Oats, 100 parts.
Soluble salts	.	.	.	.	.	.	1.
Earthy phosphates	.	.	.	.	.	.	24.
Silicid	.	.	.	.	.	.	60.
Metallic oxide	.	.	.	.	.	.	.25
Loss	.	.	.	.	.	.	14.75
							<hr/> 100.

Other analyses of oats could be given, although differing somewhat from the above, but not essentially, and all going to prove, however, that the oat is not so valuable for feeding animals as maize. Indeed, if there be any fault found with corn as a feed for horses, it is its great fattening qualities and stimulating effects.

What would the poor of Great Britain have done some years ago, had it not been for the nutritive quality of maize and the happy repeal of the English Corn Law? No other sort of feed is able to fatten animals so surely and so quickly as Indian corn. Ask the beef and pork packers of the West as to the value of corn, and they will tell you there is no such feed as a flesh and fat producer,

or a more economical one. In the face of this array of favorable testimony, are we to deny to our horses what we feed to the swine? We would ask, then, why is it that stablemen, in their selection of the feed of the horse, really reject the good and accept the indifferent? This would not be so universally the case were they to foot the feed-bill every month. Unfortunately, coachmen and grooms as a class have very indifferent notions on stable economy, the effects of which the owner may not feel; nevertheless it has to be paid for.

The strength of a horse is not developed so much by the quantity and quality of solid feed he is fed upon as on the judicious training accorded him. Animals that remain long without work, as in the sale stable, are very apt to sicken and die within a short time, if placed immediately at hard work, without preliminary light exercise to gradually develop the power that has departed during the period of inactivity. Therefore we do not comprehend the chemist, when he says the harder the work the more oats are to be fed, and can only excuse him when he takes the analogy from Northern Europe, where corn cannot be grown, and where the oat crop is found in its native element. But in this country no excuse can be given, where the luxuriance of the Indian corn crop cannot be equalled, and the oat crops are comparative failures. To pay one dollar a quart for Norway oats would not be considered economical to feed horses; neither is it good judgment to pay an extravagant price for light chaffy oats, scarcely

weighing as heavy as the refuse of European oat-clearings, and feed them to horses, and then expect a full day's work from an insufficient feed.

For horse feed, Indian corn possesses all the elements of warmth and nutrition, and is well calculated to supply the wear and tear of the system of the hardest worked horse, and keep him in a healthy condition, without any assistance from oats; but the usual addition of hay should be allowed to horses, whatever be the feed that is in use. We have thus shown, not only by chemical analysis, but by the teachings of experience, that corn* contains nearly all the elements of animal nutrition, and it therefore only remains for us to suggest a plan whereby corn can be fed, not only profitably to the owner, but with the best results to the horse. Before we attempt this, it may be necessary, however, to state that ten pounds of sound timothy hay are equal, in point of nutrition as food for horses, to five pounds of oats, and ten pounds of clover hay are equal to about four of oats. Thus it will be seen, that to adopt the corn as a feed, and reject the oat, no injury can arise from the change as long as sufficient hay is allowed. Hay being the great auxiliary to oats, we do not see why its good offices should not be exercised with the same potential

* Since the MS. was placed in the hands of the publishers, the half-yearly report for July, 1869, of the "London General Omnibus Company," shows a saving of \$70,000 as the result of feeding Indian corn instead of oats to their horses.

effects when corn is the feed, for we are almost certain that oats without the hay would be a much poorer feed than corn, under similar circumstances.

By a reference to the analysis of corn, it will be observed that there is little loss from woody fibre or other inert substance, but that it is wholly composed of flesh and fat-forming substances. It is this principle contained in corn that is to be modified and corrected as a feed, and not to be added to by a greater concentration of nutritive matter ; or, in other words, add to the corn materials that do not contain, or at least but in a small degree, those powerful constituents that characterize Indian corn ; and for this purpose we will recommend that the corn be in minute division, or ground into meal, to insure a greater diffusion in the stomach, and less concentration than would result by feeding it whole, and not mixed with extraneous matter, as cut hay, or chaff and a little bran. The bran is to prevent, or at least modify, the costive or binding and heating effects of the corn ; the chaff or cut hay is to give sufficient bulk to the feed, thereby keeping the bowels moist, and the meal from contraction. At the same time, the horse has a feed before him of which he can eat his fill without producing cramp or colic, which often results from feeding corn whole or in meal, without a sufficient mixture or bulk being given to it. It is the want of this knowledge, together with the extra trouble in cutting hay and mixing such a feed, that forms the chief argument of some stablemen against feeding with corn and in favor of oats. A

carriage or saddle-horse used for shopping or afternoon rides or drives can be kept in excellent condition with six pounds of corn meal, three pounds of cut hay, two quarts of wheat bran, and a teaspoonful of salt, mixed with warm water in winter and cold in summer, the water to be just enough barely to moisten the mess and not make soft feed or slop to disturb the bowels of the horse and unfit him for exertion.

The above-named mess is to be divided into three feeds, for morning, noon, and evening. An addition of six to eight pounds of hay must also be given in the rack. These quantities, however, are merely proximate, for the old horse and one of harder work will, to keep him in good condition, require an addition, and young animals of less work will not require so much.

Draught and hard-worked horses should be fed more generously, say fifteen to sixteen pounds of meal, with six to eight pounds of cut hay, half a peck of bran, and an extra allowance of hay in the rack at night.

Some persons have the corn ground along with the cob. To this there can be little objection—only it is a little difficult to know exactly by weight what amount of meal the horse is getting, except the full weight of the corn is allowed, and the ground cob in addition, which may with people of calculation obviate the necessity of an allowance of bran to each mess. New corn should be fed to horses with the greatest care, especially to young horses whose stomachs are as yet not fit to digest a full feed even of old

corn. Indeed Indian corn should always be ground for horses, or at least fed on the cob, to prevent too rapid filling of the stomach, thereby arresting digestion. Fermentation is thus set up, and flatulent colic and death may result.

The great desideratum in the feeding of corn should be :
1st. Have it ground, because it is more economical and safe. 2d. Mix with material having a much less nutritive principle to give bulk, at the same time having a cooling tendency, thereby neutralizing the stimulating effects of the corn.

CHAPTER IV.

DIETETICS, HYGIENE, AND REGIMEN—*Continued.*

Barley—Rye—Carrots and Turnips—Grass—Pasture and Soiling
—Timothy and Clover Hay—Bran—Cooking of Food for Horses
—Prindle's Steamer—Weight of Stable Feed.

BARLEY as food for horses has gained some repute since the failure of our oat crop, and is grown by farmers for the express purpose of feeding horses upon. In so far as those principles for fat-forming are concerned, it possesses a high degree of value, abounding in albumen, gluten, sugar, gum, and superphosphate of lime; or, in other words, barley contains about sixty-five per cent. of nutritive matter, while oats weighing forty pounds to the bushel contain only about twenty-four pounds of nutritive material.

Inferior barley in some parts of this country is fed instead of oats with the best effects. In forming a conclusion, horsemen would do well to remember that two parts of barley are more than equal to three of good oats.

In some parts of Germany, barley is ground into flour

and made into cakes, which are fed to their horses. In Great Britain it is usually boiled, and fed in the evening—fattening the horse, giving a glossy coat, and having an excellent effect in all respects.

For a sick horse, we know of nothing that assists the effects of medicines and the efforts of nature in the cure of disease like a feed of boiled barley. As already stated, it forms the chief food of horses in the far West, where it is sold for eight cents the pound, and fed to horses on the Pacific Railroad at the rate of five pounds three times daily—because it is the most economical in every way. We very much doubt whether the same amount of any other variety of food could maintain the condition and strength of those hard-worked horses like barley. In all our large cities, barley is never thought of in connection with the feeding of horses. The recuperating power of boiled or malted barley is truly surprising, and we think many a good and useful horse could have been saved to its owner by a few messes of such material. Let the boiled or malted barley take the place of the weak and deceptive bran-mash, which every horseman will persist in giving to the sick or tired horse; little thinking of the non-strengthening quality of such slops when the poor animal wants something more stimulating and strengthening. We do not anticipate that barley will become a general feed for the horse, at least, while corn is so plentiful and so cheap; but we insist that barley shall have a place and its proper one in every stable in the country, if for no other purpose

than that of an occasional change of food to the healthy, and a beverage to the sick and tired horse.

RYE, although considered equal in point of nutrition to wheat, yet is not recommended for the feeding of horses, on account of its causing an *acescent* state of the stomach and diarrhœa. As green food, it is not only valuable as a soiling substance, but is a good fattening material to most animals, and is usually fed in the early part of the summer, either by turning the horses into the field, or as is most common, cut in quantities and carried into the stable, which is the most economical mode. Rye, however, is scarcely known in the stable in any form, except as straw for litter or bedding, and for this purpose it is extensively and even extravagantly employed, costing more money than almost any one article of stable consumption.

CARROTS are cultivated in the United States by many persons as food for horses, as a substitute for oats. To horses of draught, or slow work, carrots may be fed in greater quantity than to those of the saddle or carriage. The chief value of carrots as food for horses lies in the *pectic* acid contained in them, which so much assists digestion and assimilation. Horses of slow work will thrive and do well when fed on six pounds of carrots and eight pounds of corn-meal in the day, with an allowance of hay.

Our experience, however, has been, that a better condition of horse has been attained with the same quantity of Swedish or yellow turnips, cut in slices and sprinkled with corn-meal—a feed we think that cannot be excelled either

in the conditioning of horses or the economy of expenditure, and a better substitute for green food than the carrot, which we are sure is entirely overrated as food for horses. This is easily demonstrated in a few weeks' trial; the soft and glossy coat—the healthy look—the elastic step and good spirits of the animal so fed, will attest the superiority of the Swedish turnip. A trial of the feeding qualities of the yellow turnip will not only satisfy the experimenter of the truth of the high character here given of it, but will induce him to rely upon or at least give them a place among other articles of the feed of his horses. We have seen farm horses employed in hauling manure or plowing every day except Sunday during the winter and early spring, kept in excellent working condition, fed on turnips, hay and oat straw, twice in the day, or morning and night, and when the days grew longer and the work more severe, a few quarts of oats were given in the middle of the day. We have seen horses fed upon carrots, but never in one instance have seen a generous or a more healthy response on account of them. Now, if carrots be as good and healthy for horses as is asserted, a corresponding effect would be exhibited. Without this, no special advantage can truthfully be claimed for them beyond other feeding substances of less reputed value and of less cost. Medicine, like some speciality of feed, has its value from some inherent property it contains, and is recommended for a given purpose, but sometimes we are disappointed, when it has failed to accomplish the good expected. On the

whole, we think that the good name given to carrots as a feed for the horse is in *books* only, and cannot be substantiated by the most careful experiments. We have only referred to this variety of feed for horses in view of its utility, and not because of its economy, on which consideration it will not compare favorably with many other articles of less money value, which are more easily procured, and as yet are not so well known to horsemen.

To speak of the uncertainty of the carrot crop would be unnecessary, for this is already but too well known to require comment. But of the turnip, viewed from the same aspect, little need be said. When properly understood, it rarely disappoints the cultivator, and moreover, apart from all consideration as a feed for horses, it is the basis of English agriculture, and at no distant day will occupy the same position in the United States:—First, because it is one of the very best articles that can be fed to all (or nearly all) domestic animals; and second, the manure from animals so fed is of the highest order. Thus we have a vegetable easy of cultivation and growth, which contains several properties, possesses several distinct characteristics, and is used for many different purposes. A trial of the Swedish turnip, for a season, as a *part* of the horse's feed, will *more* than satisfy the inquiring mind of the importance of our recommendation. We have spent almost a lifetime in the study of some of the domestic animals, in health as well as when diseased, and in our pre-

vious writings* we claim the credit, at least in some measure, of producing a reform in many essentials relative to the treatment of the horse. This is our only excuse for laying a stricture upon constituted opinion and public belief in the value of the carrot as food for the horse.

GRASS, although the natural food of the horse in his wild condition, leaves little more to be desired ; yet, it is not sufficient to meet the demands of his nature in a state of domestication, or when work is demanded from him, and time is thus taken that is allowed in his natural state to gather food. Some kinds of grass contain more nutriment than others ; but more, we think, depends upon the quality of the soil upon which it is grown, and whether it is too young or too old, or has ripened and its seed blown away. If a horse is to be allowed grass merely for the good that is expected from it, and not for any other consideration, the better way will be to *soil* the horse, that is, by daily cutting and bringing in the grass to the stable ; but if the feet of the horse need repairing or growing down, then select for the pasture, level and somewhat moist land. We have spoken of diseased or bad feet being benefited by soft pasture, because no disease of the legs or shoulders will be benefited by a run at pasture, as the liberty thus given to the horse, in his frolics and search after food,

* " Diseases in the American Stable, Field and Farm-yard," by the Editor of " The Horse in the Stable and the Field." Porter & Coates, Philadelphia.

often renew old sprains of the legs and shoulders, thus rendering them incurable—the horse coming home to the stable worse than when put in the pasture.

In our experience of many years in the pasturing of horses, we cannot recall to memory a single instance of the return of a city or stall-fed horse, in anything like the good condition it had when taken from the stable. Some of the more spirited were lame, more badly blemished about the body or legs, others glandered from contagion. Some had been used without authority in the work of an avaricious farmer; the shoulders and back being galled by the use of badly-fitting harness, giving evidence of a hard task-master or a cruel owner. Some horses were drowned in ditches, others had legs broken and had to be destroyed, and many good animals were stolen and never recovered. With all these drawbacks against pasturage for horses in the spring of each and every year, we cannot deny that the young and early grass is the very best of both food and medicine to the trained and domesticated horse of all our large cities. But how is this to be allowed in the face of all risks to life, limb, and the change of hands without permission or an equivalent? Seek out an honest farmer, with ample accommodations, fields well watered, good fences, ground not too high and dry, and where *no* other horses are taken to pasture, a good distance from a city or large town, and not convenient to the public highway. These precautions are necessary to safety from abuse, accidents from kicks from other horses; and the distance from cities, &c., together

with inconvenience to the highway, will, in a great degree, lessen the dangers from the horse thief.

When good accommodations cannot be readily procured, let the milkman be engaged to bring a bundle of fresh-cut grass every morning in his wagon, for from two to three weeks, which will be long enough to answer every good purpose that grass can accomplish. When this is adopted, it is but following in the wake of London and New York in this particular, where fresh grass is sold by the bundle every morning. By this procedure, all the grass that is wanted can be fed to the valuable horse, without running any risk whatever, by a season out at pasture. By the gradual and progressive change produced by a few weeks soiling in this way, the horse will not only renew his spirits, but like the eagle, it will renew his youth, and be the means of prolonging his days of usefulness.

In giving grass to horses, when in the stable, feed sparingly at first, or till the evidence is shown in the dung-pit, by the green color. This precaution will prevent an attack of colic, and perhaps the loss of life which sometimes occurs after a belly-full of grass, particularly when wet. In turning a horse out to grass, let him be a little tired, so that he will not be so much disposed to gallop and hurt himself, and place him on a bare pasture for the first two days, to prevent engorgement of the stomach and the production of colic. These precautions being fully attended to, the horse may be placed on pasture with a reasonable expectation of seeing him again, and in as good condition as when he

went out of the stable. If the pasture be high, dry, and hard, then plate-shoes will be required to protect the walls of the fore feet; no heels nor toes should be allowed, as they stick in the ground, tear off the shoes, and break the hoof.

Our remarks in this connection have been entirely confined to city horses of all works; but for the horse of the agriculturist, it will be found much more profitable to have the horses soiled by cutting and carting the grass in to the animals, either in stable or farm-yard. This plan will obviate the necessity of superior fencing. No grass is spoiled by the animals treading upon it in the field, and covering much of it with their excrement. The extra quantity and quality of the manure thus saved, will balance the extra labor of cutting the grass, &c. Old horses, and those stiff from hard work, should not be put out to pasture, especially where the land is level, as it is very difficult for such animals to gather the food from the ground. Such animals will not thrive well at pasture, but will do better when grass is fed to them in the manger.

In pasturing city or stable-fed horses, the newly-found liberty, together with the difference of the food, will for a week or two improve their condition, and they will appear perfectly satisfied; but subsequently they lose flesh, and become dissatisfied, even though wading to the knees in the finest of grass; they long for the stable, to be tied by the head and associate with man. In the summer season, horses should be kept during the hottest parts of the day in

the stable or a shed, to protect them from the sun and flies; they can be turned out late in the afternoon or evening for the night, and brought to the shelter by 9 or 10 o'clock next morning. Horses on late or second crop-grass and clover of the season will not thrive well, as the cool nights acidulate the juices and cause slobbering (salivation) from the mouth and salivary glands; this is a loss to the stomach in digestion and assimilation.

TIMOTHY HAY, we believe, for the last forty years has been in extensive use for feeding city horses, and by common consent it is considered to be the best of all the dried grasses. So firmly fixed is this opinion of horsemen on the subject, that it would be a matter of supererogation, were we to attempt to convince them otherwise. *Cats-tail* or timothy grass—*Phleum pratense*, is the great American grass, and is called Timothy from a Mr. Timothy Hanson, who was the first to introduce it, and no doubt it is one of the most valuable grasses of the country. There are several varieties of timothy which we will not describe, but suffice to say, that the timothy of Pennsylvania is the *Herd's grass* of New England, and the Red-Top of the Middle States, a variety which the farmers of Pennsylvania will not grow; they reject all seeds containing Herd's grass. The value of timothy hay depends a great deal upon its quality, not only in its being well and properly cured, but upon the soil upon which it has been grown. Timothy grass requires for its full and perfect growth a heavy clay soil; without this the product will be poor, both in quality

and quantity. It exhausts the land, and after a year or two kills every other grass that may have been sown with it. So exhausting to the soil and so selfish is it in its growth, that were it not for the great demand for it in all large cities for the exclusive use of horses, in a short time not a blade of it would be grown. Farmers who are in the habit of selling hay from their farms for spending money, are not the persons to give up the growing of that which is in demand at so good a price, even though the land should suffer.

Timothy hay is, in our estimation, not only over-estimated by stablemen, but more costly by twenty to thirty per cent. than other varieties of hay equally nutritious and more healthy for horses that do not work more than one day in seven.

Timothy hay should be cut before the seeds are ripe, for in them lies much of the value as hay. Timothy without the seeds is the poorest of feed. The stalk should be of a greenish hue (not dry, hard, brittle, brown), and of a good sound sweet smell, free from dust, and all the better if mixed with clover. This latter consideration is good evidence that the land upon which it was grown was not so far exhausted that the clover had died out from among the timothy, and that the land had not been burdened by a continued, or from-year-to-year crop of timothy.

The quantity of timothy fed to horses varies with the size, age, work, and make of the animal. Horses of slow work, and employed ten to twelve hours per day, will eat

sixteen to twenty pounds, of which a portion should be cut and mixed with the evening meal, thus allowing the tired horse to lie down sooner than he would were he to prepare so much hay for himself. Large carriage-horses may be fed twelve to sixteen pounds; smaller, driving, and saddle-horses will require less, and the hay should be fed exclusively to them at night. The quantity thus named is merely proximate, for if the oats and other feed be of good quality, perhaps a little less hay will be required, and *vice versa*. But when the hay is not good, do not give it in greater quantity, but increase the quantity of oats and corn.

In this connection it may be well to state that the size of the belly is the index to some persons as to the quantity of hay required. This indication, however, is not a good criterion, because pony-built horses, or those that are well ribbed home, may become diseased from not having feed in sufficient *bulk*, and yet present a full belly. And, furthermore, a fleet and free horse, light-bellied, and not well-ribbed home at the flanks, will not show a full belly, though fed with all the hay that he will eat. The safe criterion in such matters is to give to the horse of slow work all that nature demands, and to those of faster work, all feed of bulk at nights, or after the daily drive or ride is over. (See how Dexter is fed, ante, p. 70).

The daily requirements of a horse weighing 938 pounds is, 22 pounds of hay, $4\frac{1}{2}$ pounds of oats, and 66 pounds of water; and that of a milch cow amounts to one-thirtieth of

the corporeal weight in hay, and two-fifteenths in water, or one-sixth in both together.

CLOVER HAY.—In Philadelphia, this variety of hay is commonly known by the name of “*Cow*” hay, illustrating the contempt the stablemen entertain for this excellent variety of feed, in their judgment being only fit for the less noble but nevertheless queenly cow, and as if utterly unfit for the more noble and sagacious horse to feed or even look upon. This is better illustrated by the craving of the dyspeptic and the sick for the plain and not over-substantial but healthy dinner of the poor.

It is at all times questionable policy to constantly persist in feeding with material that costs more, but predisposes to disease, especially of the liver. A healthy liver is rarely found in a city-stabled horse of a few years, which has been fed upon the usual feed, consisting of oats, corn, corn-meal, some bran, ship-stuff, and the common allowance of timothy hay.

The city carriage-horse and saddle-cob, with an easy life, are not unlike some of their owners—possessors of a fortune, together with a degree of *hepatitis* that, by a little consideration, could have been avoided. In like manner, the same difficulty can be prevented in the horse by the opening and cooling properties of a bundle of sound clover (cow) hay, so seldom seen in the stable of the gentleman of the city, and which is so unjustly despised as a feed for the horse.

The principal objections raised against clover hay are,

the dust and the liability to give rise to heaves and broken wind in the horse so fed. To this we say, from ample experience, we do not deny but that horses fed upon clover hay in the manner that hay is given, will occasionally have thickening of the wind; but it must be remembered that many horses fed upon timothy become similarly diseased. This being the case, it cannot be wholly ascribed to the quality or kind of hay that is used. We may easily account for this being more frequent in the horse fed with clover hay than one fed with timothy, when we consider the quantity of clover horses will consume in comparison with that of any other variety of hay fed to animals of all work. It is the quantity and not the quality that gives rise to this complaint against clover hay. Are all the cases of thick and broken wind encountered in the city, caused by a hay that they never saw or fed upon? The abuse of a feed cannot stand as an argument against its usefulness, for if this be the case, is there anything perfectly harmless when overdone or misapplied? We will not enter at length into the inquiry as to the cause of broken wind, our object being merely to show that anything, either food or water, given in bulk at a time when the ride or the drive may shortly after be exacted from a full-bellied horse, will prove injurious. The question may be satisfactorily settled by a glance at the ravenous-feeding and pot-bellied horse as the victim of heaves. Who ever saw a thin, fleet, free, light, and spare-feeding horse affected with broken wind, feed him as you will?

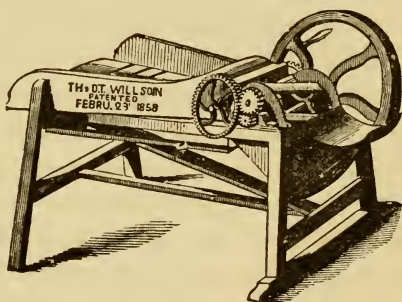
Before the advent of steam as a means of reaching distant points, when horses were the engine, and at a time when clover hay was fed to horses as it is at the present time in the rural or country districts, and when timothy hay was unknown and not cultivated, we have concurrent testimony to show that broken wind in the horse was not so frequent as it now is, nor were diseases among horses so prevalent.

Those who are disposed to give this kind of hay a fair trial as a feed to their horses, should measure or weigh the hay as you would the oats or corn, and give it at stated periods of time, chiefly at night, when the ride or drive for the day is over; and as before stated, allow no hay of any kind, especially to driving or saddle horses, during the daytime. By this course little anxiety may be felt as to causing broken wind. Clover hay is a medicine to the sick or tired horse, and he will eat of it when he will touch nothing else. It is equal to fresh-cut grass for changing both the excretions and secretions of horses, thereby removing bad smells from the stable and the body of the animal. The straw-colored dung indicates an unhealthy condition of horse, but it is at once made healthy and darkened to a brown or good color by clover hay. Being less in price and less quantity being required to be fed, it also obviates the necessity for the bi-weekly or tri-weekly bran-mash usually fed to the horse.

To those who may have doubts of the value of clover hay, and regard it as liable to give rise to diseased wind,

we would say, do not occasionally deny a bundle of good clover hay, if it be but for a relish and a change to your horses, even though other kinds of hay be used as regular feed. To avoid the dust from clover hay, it is advisable to feed it from the manger and not from the rack over the head of the horse.

There are, like timothy and other grasses, several kinds of clover, although the red clover (*Trifolium pratense*) is



“Telegraph” Hay and Straw Cutter.

generally meant, and not the marl or cow-grass (*Trifolium medium*), which latter name, independent perhaps of any other consideration, may be the origin of the appellation of “cow-hay,” as applied to clover by the stablemen of Philadelphia. The *second* year’s crop or cut of clover is perhaps, when all circumstances are regarded, the best hay for horses of all kinds and of all work, as at this time about one-third will be composed of timothy, making

a valuable mixture, more healthy and not open to the objection of the *first* year's cut, which has little timothy in it. The great value of clover, as well as other varieties of hay depends upon the time of cutting, and the manner in which it has been prepared for the barn or stack.

BRAN is the skin or husk of grain, especially of wheat, when ground and separated by the bolter or sieve. When fed to animals, it is laxative, and for this purpose it is fed to horses at stated times as a mash. This is a custom introduced into the American stable from Europe, and which we and our horses can do very well without, as the injury we have seen done by feeding bran to horses that positively required a more substantial feed is very great. The theory that introduces bran into the horse stable, is as pernicious in its effects as the indiscriminate use of bran itself at the whim of the stablemen. This theory is, that every sick or tired horse must be fed upon bran-mashes.

Horsemen have not yet learned that most diseases of the horse are characterized by a weak or typhoid condition, and not by inflammatory action. Hence, it is injurious to the horse to have his bowels loosened or blood drawn, as he requires tonics and stimulants, with sound and substantial food. Unlock the bowels of a horse laboring under inflammatory disease even, and they will not stop till death puts an end to his sufferings. Feed a healthy grain-fed horse for from two to four days upon hay and bran, and the animal will swell either on the breast, along the belly, sheath or all four legs; and sometimes all can be seen swol-

len, from the debilitating and innutritious substance called bran; and yet it is expected and believed, though never seen, that bran-mashes will prevent disease and cure the sick, and that it is in every way adapted to the horse, sick or well.

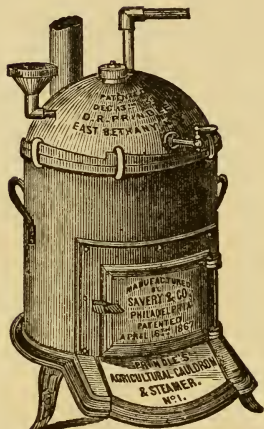
The analysis and microscopical examinations of bran now lies before me, made by men the world is pleased to call scientific and competent; and yet we are, after twenty years' *well-seasoned* experience in the feeding of horses, compelled to say that if what is said by them of the nutritiousness of bran be true, it is then in such combination as to render it unfit for food to the horse, sick or well, idle or at work, and he will soon sink from exhaustion if bran enters largely into his daily allowance of food. A little bran, with other and more substantial articles, may be occasionally given, but not in sufficient quantity to loosen the bowels, nor be counted to the horse as equal to so much other solid food, for in doing so you deceive yourself and cheat the horse. Other varieties of mill-feed might be mentioned in this connection, but our space is limited.

The Egyptian and horse-bean, the pea or vetch, Alsike clover, rye-grass, salt, flaxseed, &c., &c., in some parts of the world enter largely into the feed of horses, and are no doubt very good, but many of them have not yet received that attention from our agriculturists that they deserve. We will now close this already too long chapter on the various articles of horse feed that are produced, sold and used in our stables. In concluding, we will simply

state, that partially cooking the food will be found of great advantage, especially to the draught and slow-worked horse; much will be thereby saved to the pocket of the owner, and it is a practice highly to be commended. For this purpose, no better apparatus can be found than one of Prindle's steamers, which can be used not only with safety but economy for every purpose about a stable for which a stove is used. One of the smallest size will not only generate steam which can be conveyed through pipes to any part of the stable for heating purposes, but to the coach, harness or sleeping rooms, and with a properly closed box-stall, a Turkish bath can be heated perfectly by one of these steamers. No stable should be without one.

WEIGHT PER BUSHEL OF ARTICLES OF HORSE FEED.

Barley	.	.	.	.	.	.	.	47 pounds.
Corn	.	.	.	.	.	.	.	58 "
Coarse salt	.	.	.	.	.	.	.	85 "
Ground salt	.	.	.	.	.	.	.	70 "
Fine salt	.	.	.	.	.	.	.	62 "
Oats	.	.	.	.	.	.	.	32 "
Rye	.	.	.	.	.	.	.	58 "
Flaxseed	.	.	.	.	.	.	.	51 "



The above cut represents one of Prindle's Agricultural Steam Boilers. It can be used for cooking food for stock, heating water for any purpose, and by connection with iron pipe it will heat and dry the carriage-house, harness-room, grapery, green-house or conservatory, even though a long distance from it. Thus we have a heater, kettle, steam boiler, portable furnace or stove, with safety valve, insuring against explosion or collapse.



The above cut represents the Prindle Steamer as an open cauldron and furnace, or portable stove. In this condition it may be used for boiling purposes with water without steam attachments.

CHAPTER V.

STABLE WORK.

Cleansing and Airing the Stable—Straightening the Blankets—Waterbrushing the Quarters—Feeding and Watering—Dressing or Grooming—Shaking down the Beds and Tidying the Stable—Exercise—Blanketing—Bandages—Tying—Care of the Feet—Treatment after Work—Bedding—Rye Straw—Sawdust—Forest Leaves—Oat Straw—Salt, Marsh, and Meadow or Natural Hay—Tan-bark—Stable Vices—Kicking—Biting—Shying—Rolling—Cribbing—Breaking Loose—Tearing the Blankets—Vicious to clean.

It is of the utmost importance where animals are confined, tied by the head, and dependent upon man for what they eat, drink, and, we had almost said, the air they breathe, as well as for other matters upon which good health and condition depend, that good ventilation be insured, and the greatest regularity enforced as to the opening of the stable in the morning and freeing it from the accumulation of carbonic and ammoniacal gases; also in feeding and watering the horses, cleaning the stable, squaring the blankets, and brushing the dirty quarters or hips.

The free ventilation relieves the eyes and breathing apparatus, and the blood from morphological change. The regularity of feeding and watering at certain or stated times favors and promotes the functions of digestion, and in a great measure prevents windy or flatulent colic, which can often be traced to irregularity of feeding and length of time between the hours chosen for such purposes. In support of the latter distinction, as a cause of colic, we have but to refer to the period before the advent of railroads, and when it was but too common to feed horses twice daily, morning and night. The hunger being excessive, the animal would eat too much and too fast, paralyzing the functions of the stomach; fermentation and the evolution of carbonic acid gas took place, causing colic, often ending fatally. The horse would be found dead in the morning in his stall, without any assignable cause. This could have been averted by giving a smaller feed, or better by allowing the hungry horse to eat hay, straw, or some other rough or bulky material, for one or two hours, so as to partly fill the stomach, and in a *slow* manner, before the more nutritious and concentrated corn or oats were given.

For horses that through the force of circumstances, cannot be fed at regular intervals, and at short periods, be particular to allow hay for at least one hour before the more solid feed is given. To insure regularity, as far as possible at least, on the part of the groom, he must be a sober person and not given to debauch during the night,

that his attendance at a regular hour in the morning at the stable be not interfered with—"no man can serve two masters." On going into the stable in the morning, a personal inspection of each horse should be made to ascertain if the foot is over the halter, or the eyes have suffered an injury, or whether there be a shoe loose, &c. Next, see that the means for ventilation are open and free from obstruction, and thus the mercury will be reduced from 5° to 10° ; and if possible keep it steady. The covers, sheets or blankets should at this time be straightened on the body of the horse, always taking care, especially in cold weather, to throw them well toward the withers, so that they can be pulled toward the hind quarters or the way the hair or coat lies, so that it can be kept smooth and unbroken.

THE WATER-BRUSH should now be brought, with a little tepid water and soap to brush and cleanse the quarters or hips and thighs of each horse, that have been roughed and stained during the night when lying. This is especially required with white and gray horses to keep them clean, always brushing and drying the parts downwards with the hair. Dirty or roughened quarters on the carriage, saddle, or driving horse are utterly inexcusable on the part of the groom, and should never be allowed in summer time; but in cold weather and when the horse is out early, the parts may not be yet dry—less can be said when the parts are not altogether pleasing. The same rules may be exacted when a fine horse has a white hind foot and part of the leg, with

this difference, a soft woollen bandage can be wrapped loosely around it, by which it will in a very short time be completely dry by heat and evaporation. These few, but necessary preparations need not consume many minutes of time, but will add to the health of the horse, facilitate the operation of grooming, and insure a smooth coat of hair on all parts of the body. A portion of the food, water, or perhaps the whole allowance of either, may now be given to each horse. Some grooms prefer to give the water before the oats or feed, others give the feed and follow with the water, when the feed is eaten. Still, others feed and water in *half* quantities at a time—two waterings and two feeds in the morning, in the manner the celebrated horse Dexter is fed (page 70). Whether water or corn be first fed to the horse in the morning is like some other questions in the care of horses, which can only be satisfactorily answered by stating that when horses, their nature, health, and work are all alike, then, and then only can treatment of them be fairly fixed.

Horses of slow work that are not over-excited and warm when they arrive at the stable in the evening, can have as much water given to them as is necessary without injury; such animals can be fed or watered in the order the groom may choose, but horses for light harness or the saddle, and that perform their work in from two to four hours out of the twenty-four, and arrive at the stable very warm, and sometimes at a late hour in the night, cannot with safety be allowed much cold water to drink, and tepid water will

not satisfactorily allay the cravings of a thirsty and tired animal. Horses placed under such circumstances, very often teach the groom that the bucket of cold water is preferable to the measure of corn, by the refusal to eat till water be first given. There are again some horses of all work that are so healthy and hearty that they will not drink till after the allowance of feed has been eaten, and on this account are often unjustly dealt with through indifference or ignorance of the groom in not watering *after* the morning meal has been consumed.

While the horses are feeding, the bedding may be shaken up, the good separated from the dirty, and the stalls as well as the floor swept clean. The stable drains and stench-trap, especially in warm weather, should be washed with a broom and water; in winter by keeping the drains clear of straw and dung, washing is not so often necessary nor desirable. The stableman may now eat breakfast with as little disturbance as the horse. This is important—for *Punch* intimates that when a gentleman wants a thing done, the best way is for him to do it himself; which is illustrated by the gentleman exercising the horses whilst the grooms are enjoying their beef and beer, for upon their enjoyment depends their good nature for the rest of the day. Without over-indulgence, however, the stableman may at this time leave the stable, as the custom is not to groom a horse in his stall, especially when feeding; and it is not advisable; besides it would be attended with danger to the groom from a spirited horse. Moreover, time is

allowed for the white leg and washed quarters to become dry before an attempt is made to groom them. On the return from breakfast, dressing or grooming may be commenced.

The thorough-bred groom or stableman may not be taught much from us, as to the utility and manner of grooming horses; but unfortunately all persons employed in our stables, public and private, are not proficient, nor are they of the most intelligent of our citizens even in regard to this their calling, which most have adopted not from choice, but necessity. The owners of horses and employers of stablemen with us are mostly business men, or merchants, who have little or no time or thought to give to the stable and its management, and moreover as a whole are not well "posted" as to stable requirements or necessities, and are often imposed upon because of their want of knowledge. These we now address, when discussing *how* and *when* the affairs of their stables should be attended to, together with the effects upon horses, harness, &c., of such care as is bestowed upon them.

GROOMING may be properly defined the cleaning and dressing of the external form or outer skin of the horse, but by lexicographers it includes feeding also. Of this, however, we have already spoken, and therefore will only allude to "*cleaning*" a horse, which is performed in as many different ways as there are different degrees in its perfection, and final effects or results upon the horse. The full or grand result of a perfect system of grooming horses

can only be seen in animals of a high standard of health, and which cannot in all cases be gained by a perfect plan of grooming alone, but by other considerations, as good feeding, stabling, &c. In addition, nor will those latter in their utmost perfection, attain so desirable an end without the careful performance of the former. Although separate and distinct in their application to the horse, they are inseparable from a healthful development.

The implements or appliances that are necessary and used in the private stable of the gentleman, are more in number but not less in effect than those found in stables of less pretensions. They consist of the curry-comb, familiar to everybody, made of iron, with saw-teethed bars, of much use on the hair of heavy draught horses in winter, but of very doubtful applicability in summer on the fine and thin hair of all horses, particularly of fine bred animals. For the heavy horse, the curry-comb is the first implement brought into use in the act of grooming, and is used to ruffle and tease the hair to remove dust and dandruff from the skin. This use of the curry-comb, we have for many years opposed, because in cold and frosty seasons, the more closely the hair lies to the skin, the warmer and more comfortable will the animal be; therefore, the curry-comb if used at all, should be drawn the way the hair lies and not against it. The most important use to which the curry-comb can be applied, is to remove the dust from the broad bristle or body-brush, by drawing the face of the brush against the teeth of the comb.

This brush is perhaps the most useful and indispensable of grooming implements, but, like the iron comb, is liable to abuse, by using it *against* the lay of the hair on well-bred animals in cold weather. It should be used as little as possible in winter. For the body in cold weather, the hay (meadow or natural) wisp, which is soft, should alone be used, and is made as follows: make a thick but soft hay rope, cast it into a knot, and flatten against a smooth wall or post, after which the flattened face of it should be slightly moistened with water to soften the wisp still more. There is no cloth or other wisp equal to this for the fine-skinned animal. It not only removes dust, but soothes the skin, smooths the hair, and gives the coat a healthy appearance. It is more satisfactory to the horse, and should be almost exclusively used for summer grooming of all horses, especially for the thorough-bred animal. Where the curry-comb and brush are used, the wisp should be employed to complete the task before putting on the blanket.

In winter, horses of fine breed should be groomed in a place not colder than the temperature of the stable, and if no such place be convenient, do it in the stable, and after the grooming clean with a brush or feather duster, all the fixtures and furniture.

The dandruff-brush (called "dandy-brush"), made of stiff, yellow, woody fibre, can now be used to dress the forelock, mane, and tail. This is considered not so liable to tear the hair out, like the old bone comb, which many

still use. The dandy-brush is an excellent and almost indispensable article of the stable, and is used with advantage and effect on the body and legs of horses that come in warm, for straightening the hair, and removing dandruff and other foreign matter.

The moist sponge should now be used to wipe the eyes, nose, &c. The hoofs may also be attended to in like manner, and, if time and taste will admit, some hoof ointment, colored to match the hoofs, can be applied to them with advantage. For this purpose, the "resin ointment" of the drug-stores will do, or equal portions of the oil of tar, whale or sweet oil, colored as above.

The beds should now be shaken, but thinly, over the stalls, and a little out on the floor of the stable; the "plate" laid down, or the "roll" be made, to give a tidy and tasty appearance to the stable. To carry this taste a little further, a four-inch fold of the blanket or sheet may be turned upon itself on the quarters of the horse, and the part thus made bare, or a portion of it, changed in shade by four scores with a clean brush, leaving a square or diamond in the centre, as the taste may be, of a different shade or lay of hair, which is very pleasing in effect and shows good grooming and taste. If the horses have been on a journey the previous day and are fatigued, a good bed should be allowed, so that the horse can lie down. We have never seen horses injured by resting too much, but on the contrary, by too much standing, thus wearing out both feet and legs. That the legs may wear well with the body,

let the head down, darken the stable, and give good bedding to the stall: thus the legs and feet of many an excellent horse will be made comfortable, and wear many years longer than by a different and inconsiderate treatment. The latter consideration is more applicable to the driving, carriage, and saddle horses, but not at all inapplicable to horses of all work, when a day is allowed them in the stable.

The recommendations in this chapter are more particularly designed for the benefit of city horses, but we do not know of any class of horsemen or owners, if it be not, first, the farmer, and second, *some* of the livery stablemen of Philadelphia, and other large cities and towns, that can be benefited so much by following our instructions, at least so far as cleanliness and taste are concerned; for it is not an unusual habit for farmers to have their horses standing in filth and dirt up to their knees months at a time—a stereotyped habit, which should be abandoned as not fit for the healthful treatment even of the pig. This carelessness in the stable of the farmer cannot be accounted for upon any other hypothesis than the force of habit, a lazy disposition, and complete ignorance of the laws that govern animal life and the nature of the horse. Besides, it shows the want of capacity to manage the ordinary affairs which pertain to the everyday duty of the farm and the stable. Farmers and others who allow this state of affairs in the stable, must be taught to expect in the spring epizootic disease of some kind—lung fever, typhoid influenza, sore eyes, swelled

legs, scratches, thrushy feet, &c., &c.—as the result of such a pernicious system.

The cleansing of the stable should in every case be among the first acts of each and every morning, and where good arrangements are made, no loss of time or inconvenience will be experienced by so necessary an arrangement. Other little niceties that are tasteful and timely in the private stable of the merchant-prince may not be enforced in the stable of the agriculturist or in the ordinary livery stable ; but cleanliness and good ventilation are necessary in every stable, and in the country, where there is space enough, the cleanings from the stable should be removed some distance from the doors and windows, by means of a wheelbarrow. Any person who values the life and good health of his horse, should absolutely refuse to stable where the manure is deposited in the building with horses, harness, and carriages, as seen in many livery establishments. The ammonia evolved in the closed stable during the night is injurious enough to the health of horses and the paint of carriages, without their being subjected night and day to this noisome odor. The injurious effects of ammonia from stable manure may be correctly judged of by a visit to some lead-paint manufactory ; its action speaks louder to the understanding of man than mere words. In closing this not-over-nice subject, we hope the farmers and some others will learn that cleanliness in the stable is of high consideration, independently of its superior economy.

EXERCISE, in the phrase of the stable, is intended as a

substitute for work to horses that are not regularly employed, and is often a very convenient plan by which the groom "shows off" to his brothers of like occupation, the condition of his horses, the easy time and place he has, as evinced by the apparent, if not, real necessity of exercising the *idle* horses. To the sober and industrious groom or coachman, who avoids associates at the tavern, the hour of exercise is time spent with much pleasure and to many with profit, by the comparison of the condition of other horses with those of which he has the care. Further, it is often a pleasure to the owners to know and see his horses at exercise, looking as well if not better than others.

The increasing wealth and prosperity of many of our citizens, entitle them to articles contributing to ease and luxury, some of which cannot be always in use, but it is necessary they should be kept in a condition that fits them for service when required; hence the introduction into the stable of the word *exercise*. There are several ways taken to exercise horses, the most common being with the saddle—horseback—and if there be a pair, one is led by the side of the other. The "led" horse, for safety to himself, should have a bridle on, and a surcingle or belly-band around the body, to which is attached an ordinary bearing rein, but not too tight, sufficient to employ the animal's attention from other horses or objects, so that there will be no rearing up, kicking or being kicked or sprained, as would sometimes be the case if left without some other restraint than the simple halter and "shank" by which

he is being led, by a person on the back of another horse. From want of sufficient work, with good feeding, feeling spirited, he is full of fun or play, that sometimes ends injuriously.

Our experience has taught that with high-conditioned horses, no plan for their exercise is so effectual and safe as when performed in the manner of their usual work, which can only be objected to on account of the wear and tear of the harness and carriage, together with the extra labor of the grooms in washing and cleaning. The former objection can, in a measure be obviated by using an inferior carriage with coarse, but *strong* harness, and the latter by less labor being necessary to keep such articles in order than those of greater value. In some parts of Europe the "break" or van is used for such a purpose. For saddle horses, the saddle and bridle should only be used, but may be of less value than those required for regular work. In England especially, it is the custom in frosty weather and where there are slippery roads or streets, to give doses of physic (a purge), as a substitute for work or exercise. We mention this, not for its adoption, but that it should be avoided under all circumstances.

Old horses require but little exercise, although capable, without fatigue or injury to themselves, of doing a greater amount of work than younger ones. The young animal is not capable of enduring much work without fatigue and injury, but requires to be *out* of the stable daily, even though not much exercised. Young horses are stabled too

much for their health, yet are incapable of standing much work or exercise without giving rise to splints, sprains, &c. When exercise is necessary for the young horse it should be confined to a walk, and in double the *time* that is allowed to the older animal. It is the want of this physiological knowledge on the part of those who profess to be adepts in the art (I had almost said science) of training horses for the race course and turf, that destroys so many excellent and promising young horses, when placed under their charge. Indeed, so much is this the case, that it is but *few* that stand the unjust and cruel treatment in the daily exercise that is exacted from them. While, if a year or two older, or at least with a more judicious system in force, many that are injured, would be more likely to show themselves animals of speed and value, instead of worn out, crippled, broken in spirit, diseased in the bones of the joints, with spavin, ringbone, and other osseous deposits, before the animal had begun its career of usefulness and profit.

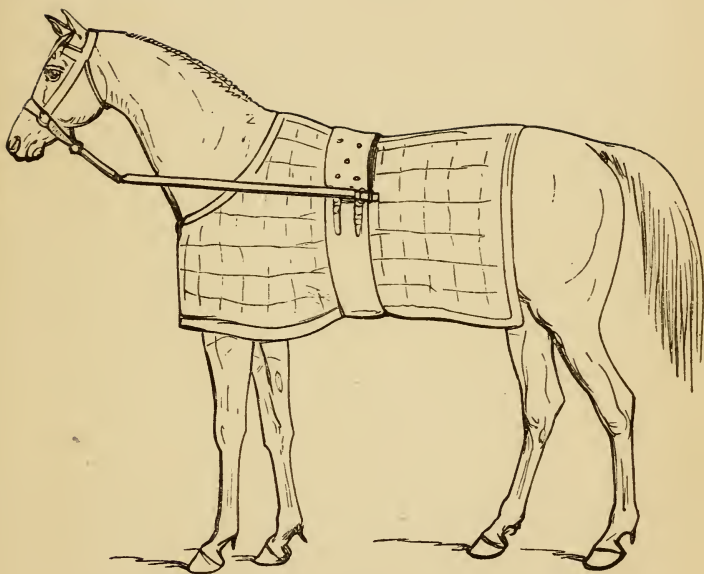
The subject of training we will leave where it is, in the hands of those, who through ignorance of the animal and its power of endurance under adverse circumstances, have done more to hinder and close the door to a more perfect system of breeding horses, than even the present system of racing. We hope a good and beneficent government will speedily recognise the evil and apply the remedy.

BLANKETING horses is a matter of much importance, for upon a proper use of the blanket its principal value de-

pend, though neither the value of the blanket nor the principle upon which they act is fully understood by the best of grooms or horsemen, outside of the fact that blankets will keep the horse warm.

Blankets are a necessary article of stable appliance, at least where a high condition of horse is necessary. Without a certain degree of heat in cold weather, horses could not be easily kept in flesh and condition. This heat is in part supplied by the application of blankets to the body and in part from the feed. The colder the animal is kept the greater the amount of feed required to supply caloric. The blanket not only prevents the evaporation of heat from the body of the horse, but at the same time forms a barrier between the pores of the skin of the animal and the cold air. Blanketing should be just sufficiently heavy or light to insure *comfort*, by allowing *insensible transpiration*, but not so heavy as to produce sweating or *sensible transpiration*. It should never interfere with a free exhalation from the surface of the skin, which is eminently necessary to health.

Blankets of coarse wool should only be used, and not be lined with anything other than woollen material, if lined at all. To blanket with water-proof or rubber cloth while the horse is in the stable, without harness or saddle on his back to elevate the covering from immediate contact with the skin, would be injurious, because it would in great measure prevent the natural transpiration. The same objection may be applied to the buffalo and other robes



HOW TO PREVENT HORSES FROM TEARING THEIR CLOTHING.

being used as blankets in the stable; though they are admissible as coverings to throw over the back of a heated horse on a cold day, whilst he is standing out of doors or in an open shed, with the saddle or harness on, which allows of sufficient, but not over, transpiration to take place. It will be observed that it is not always the heaviest blanket that is the warmest, but that which is fine and soft, made of wool and not too porous, allowing some little for weight also. The use of rubber coverings on carriage and some other horses on wet days would be a positive injury to the health were they worn close to the skin; but this is obviated by their being fixed outside of the harness, insuring much protection and good, with no bad result. The great object of the blanket is to give warmth and comfort, and its use should not be carried further, for it will then be at the expense of the constitution, with a great liability to disease.

The soft wool blanket should always be placed next to the skin of a horse that comes to the stable wet, with rain or sweat, as it readily absorbs the moisture, to the great comfort of the horse. Thick felt and kersey or cloth blankets are not fit for this purpose, besides the latter is too costly, and should be used only as *day* blankets, and when at slow exercise. The softer and less costly are for sweat and night blankets. Quarter-cords should be fixed to the blanket when exercising, to prevent their being turned up from behind by the wind, but blankets for *mares* when in the stable should have none, as they

interfere with urinating, and cause the animal to wet her legs.

BANDAGES are familiar to most stablemen, but, like the blanket, are not so well understood, though applied for different purposes and in different conditions and forms. Thus we have the dry, wet woollen, linen, chamois leather, straw, and hay-rope bandages, all of which at times are in use, and, no doubt, are of considerable importance, when intelligently used and applied to the legs of the horse. But when inconsiderately used they are productive of harm, as, for instance, the substitution of the wet when the dry is required, and *vice versa*.

Dry bandages, when used for the purpose of absorbing moisture from the legs, should be of soft woollen, which, when applied to the legs that are wet from washing or from the roads, will dry them quicker than by almost any other means; at the same time, the limbs are kept warm and comfortable, leaving them clean, smooth, and glossy. By their application immediately after the legs are washed, or when the horse returns to the stable on a wet and cold day, no bad consequences need be apprehended.

For coarse or farm horses, or where economy is to be considered, the hay or soft-straw rope, loosely wound round the wet or cold legs, is of great benefit, preventing scalding of the heels and consequent scratches.

When it is intended to support the tired limb, or make pressure to promote absorption of effused fluids from the legs, and consequent swelling, the bandage may be advantageously made of linen and applied dry.

Wet bandages are usually made of woollen, and are used when the legs are hot, tender, or sore, and for the purpose of applying lotions and constant fomentations. An excellent method is the application of a bandage made of chamois or wash leather, wet with a lotion made of one drachm each of acetate and sulphate of zinc dissolved in a pint of rain water. To gain the full advantage from wet bandages, one of dry linen should be wound round and over the wet one, to prevent evaporation; and we may renew the moisture by occasionally pouring water or other fluid on the leg, between it and the bandage, taking care to wet the outside bandage as little as possible. Wet bandages should not be continued above twelve hours at a time, after which they should be removed and the part exposed to the air, to prevent scalding and falling off of the hair. If too long continued, the hoofs will become so soft that they will not be able to bear much weight upon them, especially when on stony roads or cobble-paved streets.

Bandages should be from two to three yards in length, and the breadth about six to eight inches, tapering to the other end to about three inches, and to this tape for tying them should be affixed. In well furnished stables, each horse should have his full set of bandages. As the application of bandages is quite an art, the greatest care should be exercised in applying them; first, to prevent wrinkling the hair, and second, to insure their staying in place when put on the leg. This latter consideration is important, as no horse of value should be placed in a rail-

road car, or on a steamboat for conveyance to any place, without warm bandages on every leg. Let the strings always be tied either on the in or outside and middle of the leg, or equi-distant between the knee and pastern joint, where they will not interfere with the horse's movements. Bandages are only applied on the fore legs from the knee to the pastern, and on the hind legs from hock to pastern.

TYING horses in the stable with good judgment and care, is perhaps the best preventive of accidents to them, and its neglect is certainly one of the most prolific causes of injuries during the night, when no person is near to render assistance in the struggles of entanglement with the halter improperly fastened to the manger and fixed upon the head of the horse. In an extensive veterinary practice of long duration in Philadelphia, many, very many cases of injury to valuable horses have we seen, which were classed by the stableman, under the very convenient covering called accident, and brought about by the indifferent, careless, and unsafe way in which the animals had been tied in their stalls. Thus, we have cut heel of the hind foot, resembling scratches, by the halter rubbing and cutting into the flesh—wry-neck, from the animal being cast in the stall, by the head being held during, perhaps the most of the night, in a bent position—getting loose by slipping the head halter or untying the halter's shank and gorging from the corn-bin and finally dying of colic; or if no feed be within reach, the other tied horses are at the mercy of the loose one and defend themselves by kicking

and biting till morning arrives, when a broken leg or a wounded and sick horse is seen—as usual, to be placed to the account of accident.

The above-named results, are but a few that can be classed amongst avoidable or preventable injuries, which, by a judicious and careful system of tying would be almost impossible, at least in the stable. The head stall or leather portion should neither be too large nor too small for the head to which it is to be fitted, and when it is on, the crown strap should also be neither too long nor too short, and the loose end should always be secured in its keeper; this to many persons seems a small thing, and consequently a very important matter is thus neglected. The head portion of the halter or stall-collar being of a proper fit and well secured, attention to the tying of the shank, whether of leather, rope, or chain, is of the utmost importance, because more injury is caused by improper tying of this, than ever occurred from the mere getting loose, which in itself is often of little account, as the horse may be a quiet one, and will neither disturb his mates nor the corn-bin. But if the leg gets over the shank of the halter, the head is held to the floor, the animal becomes almost frantic in his efforts to free himself, dances about, and finally casts himself in the stall—the leg is badly bruised, it may be broken, and the *finale* is a dead horse. The only safe plan of fastening the shank of a halter from the head to the manger, is to run the strap or shank through an iron ring, secured to the centre of the manger or the top rail by a

staple, thus allowing an equal distance to each side of the stall. The ring should be large enough to admit a free movement of the shank through it. No hole cut through the boards of the front of the manger will be safe. After the shank is put through this loose ring, it should be fastened to a wooden ball or block, without square corners or sharp points of larger size than will be admitted through the ring, and weighing about half a pound, with a one inch hole through its centre. Thus, this weight attached to the end of the halter, acts as a sink to it, and allows no slack, therefore the leg cannot get over it. The length of halter shank to be allowed may be measured by the height of the manger from the floor, or distance the ball will carry the loose or slack halter, and let no accumulation of bedding, litter or straw, lie immediately under the front of the manger to prevent the ball sinking clearly to the floor. The above plan for tying horses in the stable is the only way to avoid accidents, and no other contrivance, short of the loose-box, should ever be substituted for the sink-ball.

CARE OF THE FEET of the horse is suggested by our large experience, coupled with the truism, "no foot no horse,"—and further, a good healthy-bodied horse will outwear two sets of legs, and something above that number in hoofs and feet. We will therefore endeavor as best we can, to indicate a plan, which when followed will give such good results, by a freedom from disease short of accident, that will shake the faith of many who believe in the above aphorism. To attain so desirable a condition, the

hoofs of a horse should be kept in as natural a condition as possible, and this can only be accomplished in the trained or domesticated horse by artificial means.

Deterioration of the foot of the horse, is inseparable from his domestication and the purposes for which he is employed, unless artificial applications are used, and chief amongst these are *moisture* and *refrigerants*—cooling appliances. The want of moisture in the foot of a horse causes hardness, which again produces want of elasticity, which is soon followed by contraction or shrinking of the posterior quarters of the hoof, which gives rise to absorption of the sensitive structures within the hoof, ending in ulceration of the bones, laming the horse for life.

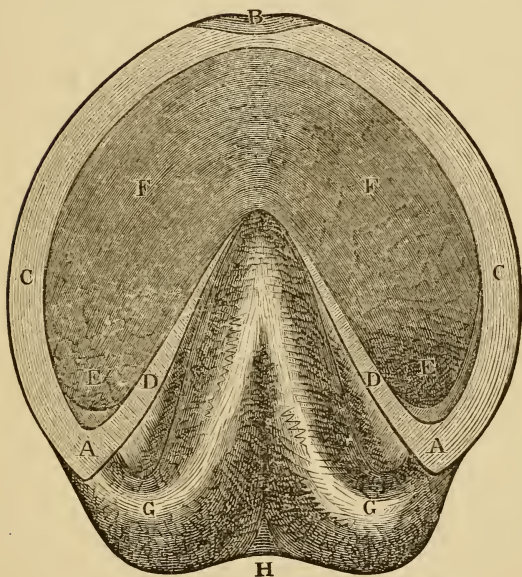
The above is only *one* of the terminations of dry-hard hoofs. Another is where *brittleness* follows dryness, giving rise to sand-cracks or quarter-cracks, chipping, or spelking off of portions from the wall of the hoof, so that in many such cases a nail-hold cannot be found to affix a shoe, and for such condition the shoer is not unfrequently made an unwilling sponsor. Any contrivance then capable of counteracting and preventing dryness, hardness, and brittleness, is to be sought for and applied, and every cause that leads or gives rise to these conditions, should as far as possible be avoided. The former conditions are avoided by stuffing the soles with flax seed meal, made into a poultice and laid in the space on the sole, not covered by the web of the shoe. This should be applied at night, twice a week in winter, when the roads and streets are wet, and

three to four times in summer when the sun is hot and the streets are dry. If the stuffing is not sufficient to supply moisture, it should be assisted by fever pads, or *crescent* shaped folds of woollen cloths, saturated with cold water, and laid over the hoofs and tied behind the foot, with worsted strings, to prevent marks or shaving off of the hair. The pads or cloths, like the stuffing, may be applied as often as may be necessary to keep the hoofs *cool* and *moist*, taking care, however, not to have the hoofs too soft, or the horse will not step as firm upon his feet as he would naturally do.

Those causes which give rise to dryness, &c., &c., of the hoofs should be carefully avoided. Thus, the horse-shoer should not be allowed to apply a shoe to the foot, either to make its bearing, or fix a shoe even slightly warm, but it must be positively cold to the foot. Another cause of dryness, &c., may be avoided, in a great measure, by standing and driving horses in the shade, and not allowing the sun's rays to reflect upon them; and finally, by driving over roads with the softest surface consistent with the weight of the load to which the animal is attached.

To aid in this matter, a few words to the shoer seem to be necessary. Treat the hoofs of horses by no fixed rule, as all hoofs are not alike in size, solidity, firmness, and depth, although they all belong to horses of the same work. Thus, some hoofs will require considerable portions of horn to be taken from them at each monthly shoeing, while others again cannot afford to be so treated; and hence

A FOOT PROPERLY PREPARED FOR THE SHOE.



A. The heel of the crust.

B. The toe.

C C. The quarters of the crust or wall.

D D The bars as they should be left
with the frog between them.

E E. The angles between the heels and
bars, where corns appear.

F F. The concave surface.

G G. The bulbous heels.

H. The cleft.



the necessity for good judgment on the part of a horse-shoer to treat each hoof as its conformation suggests.

TREATMENT AFTER WORK forms one of the most important considerations of stable economy, and upon the adoption of a good, bad, or inconsiderate usage depend the health and appearance of the horse. This is the period when coughs, colds, lung diseases, and many other ills to which horses are subject, are contracted, and can only be avoided by a system founded on natural laws. Thus, the season of the year, the heat and fatigue of the horse, will have to be considered, as well as the location of the stable, and its ventilation, the amount of help that can at once be made available when warm horses arrive at the stable, and whether the animals be clipped or have long and thick coats of hair.

For each variation from the above conditions, a corresponding change or adaptability in the treatment and care will have to be provided. Thus a horse that is clipped will perform a greater journey without sweating than one with a winter and uncut coat of hair upon him. The clipped horse, then, is not to be judged of by whether he is sweating, but by the length of the journey and the time allowed or consumed in it—and his treatment should be accordingly; for he is as liable to cold, &c., as the animal with a heavier coat, because the heart of all animals after fatigue will beat very slow, and hence the necessity for care in properly covering and giving small mouthfuls of water; for by the neglect of covering, to assist as a stimulus to the

heart and circulation, and by giving large draughts of cold water the circulation will be impeded, and lung disease may be the result. To prevent this, keep such horses, at least in winter, out of a draught—though this may be allowed in some very warm days in summer—and cover them comfortably with woollen blankets (see *Blanketing*) till the hair is dry; for in winter in this climate no attempt should be made to rub the coat dry, as the time thus required would chill the horse. Let the heated and tired horse, whether he be clipped or not, be kept warm till the time of starting further on the journey, or until the next morning. This is safe, and can do no harm.

It is true, many persons do not like to know of their horse standing all night with a wet coat of hair; but how is this to be got over, without exposing the animal to disease, in an attempt to have the hair rubbed dry? The only alternative is to have the hair straightened with a brush after using the scraper, and if wet cover up till morning, when the hair will be dry, and can then be cleansed. Do not wash the feet or legs in winter, unless warm woollen bandages are immediately applied to them. (See *Bandages*.)

In summer, cold water applied even to the whole body, but not immediately after work, may occasionally be allowed. A mouthful of cold water at all seasons of the year should be given, even before the horse is cooled. There is more danger in giving cold water to a *cold* horse than to a *warm* one. If too much cold water is given to horses when warm, the caloric or heat of the body is sud-

denly expended, and then follows a congestive chill. Hence the necessity of giving a warm horse a small quantity at a time, till he wants no more. Horses after a journey should not be allowed feed in small bulk, like oats or corn, till the heart and lungs have been restored more nearly to their quiet state; a little hay may be given with advantage, because it will prepare the empty stomach to receive more solid food without giving rise to colic or acute indigestion. The whole art of treatment after work consists in making the horse comfortable, without causing injury. A considerate horseman, on returning, will drive slowly as he nears home, thus allowing the horse gradually to cool off, obviating all injury from cold water or draughts of cold air about the stable.

What are we to say, however, to the inconsiderate driver, who stables at "livery," where all horses return about the same time, and all cannot be waited upon at once? (See *Livery Stables*.)

BEDDING for the stable is a matter of considerable importance, not only as to its usefulness, but its expense, for of late years, straw sold for this purpose seems constantly to increase in price, so much so that we consider the *straw* account the most important item in the expenses of the city stable, and think that a cheaper substitute is imperiously called for.

RYE-STRAW, which forms the bedding of most of our city or private stables, is perhaps not the best nor the cheapest material that could be used, because its extreme

length does not fit it for a good litter for horses, as but one-half of its length is soiled, and the clean portion has also to be thrown to the dung-pit, making a costly manure. Its price almost forbids its use for such purposes.

SAW-DUST makes a good bed for horses, and is in use in many stables, and appears to give satisfaction.

BAR-SAND makes a very good bed for horses, and is in use in some parts of the world.

FOREST LEAVES are an excellent bed, when free from wood and pieces of tree branches.

OAT-STRAW is perhaps, considering all things, the best of beds, and is used in nearly all countries, but in our own it is almost unknown.

SALT MARSH AND MEADOW or NATURAL GRASS makes a very good solid bed; but is so much sought after for packing material that little is used in the stable.

TAN BARK is in use in some parts of the country, but on account of its stringency, is injurious to the horses' feet.

STABLE VICES among well-trained horses are not many, nor are they under all circumstances very aggravating; some horses with a stranger or new groom, in the strife for the mastery, will for a time evince a determination to do mischief; but with the old, or on a better acquaintance with the new man, will settle down to good behavior. This peculiarity of horses, with destructive impulse, is confined to biting, kicking, &c.; but tearing the cloths off the back, &c., cannot be classed as above.

KICKING in the stable at night is difficult to remedy,

because it is often acquired by habit. It can hardly be classed as a *vice*, as it is generally in play, although associated with danger and destruction to both the kicker and the next stall neighbor, and often results in a broken or bruised leg. The remedy consists in the removal of exciting causes, such as other playful or idle horses, from the neighborhood of the kicker. Allow a loose-box or plenty of room, and nothing to kick at, regular and plenty of day work, but do not stint the feed as is often done in such cases.

BITING is much like kicking in its cause and effects. Apply a wire net muzzle, and enforce obedience by always holding in the left hand a short stick, so that the animal can see it. This is a necessary precaution, because the horse is quick to discover its absence and will act accordingly; it is not necessary to use it, however. We have known instances where an extra glass of whiskey induced boldness and indifference on the part of the groom, associated perhaps with neglect of the usual stick in hand, has caused severe injury.

SHYING in the stable, as on the road, is the result of incipient disease of the eyes—a distorted vision—seeing things in a hideous form—and in the stable is manifested very commonly at the sieve or vessel in which the feed is carried to the manger or trough, causing the animal to shy, not always *from* the object, but *towards* it, as if to crush it on the spot, and if the groom is not active in striking the animal off from him, he may be crushed against the stall's partition. Care and attention will be required on the part

of the groom till disease of the eye destroys the eyesight altogether; or the horse may be removed into a wide place, where accidents of this character cannot occur.

ROLLING in the stall would not be classed as a vice, if it were not that the animal so addicted may get *cast*, or fall on his back, and not be able to rise till assisted in the morning. The results of casting in the stall, with the violent and determined struggles to get up again, often results in broken legs, injuries, and death before assistance arrives. To remedy this habit, or at least prevent its consequences, provide a loose-box, a wide stall, or a very narrow one, and tie the head just so that the shoulder can rest on the floor, but not allow the head and neck to do so.

The horse that is addicted to rolling is generally a good and healthy horse, and it is a pity to deprive him of the luxury by any contrivance, if it be not to increase his facilities without danger to himself by giving more space.

CRIBBING is familiar to all stablemen, and is a habit confined mostly to the stable; it is caused by indigestion and idleness, giving time for one horse to teach it to another. It consists in horses filling the stomach with air, which in a manner satisfies the appetite to the almost exclusion of solid food.*

PREVENTION of crib-biting is a difficult matter, so much so that we have seen a horse, deprived of all fixtures to

* See Diseases in the "American Stable, Field, and Farm-Yard." Philadelphia: Porter & Coates.

which his mouth could touch, still perform the act, having recourse to the thigh of his own fore leg upon which to press the mouth.

BREAKING LOOSE is a vice easily cured, where space is no object, by allowing no halter and confining the animal in a loose-box.

TEARING THE BLANKETS may be remedied by allowing all such horses to stand in the stable with none on, or by fixing a rod to the check-ring of the head-halter, and the other end of it to the surcingle or roller round the body.

VICIOUS TO CLEAN.—On such a horse put a wire muzzle, and tie the head tight between two posts, and as much as possible dispense with the curry-comb or other hard instruments, especially with sensitive-skinned horses.

CHAPTER VI.

CARRIAGES, HARNESS, &c.

Carriages—Their beauty—Lightness, strength, and weakness—Axles—Collings' Patent—Patent Mail and Half-mail—Common Springs—The Elliptic and Shackle—Their safety and strength—Care of Carriages, and how to wash them—The best Grease for Axles—Castor Oil—Crown Soap, its make and value—Harness—Specialties in—"Kemble Jackson" Bridle—Kicking Strap—Four-in-hand—Tandem—Care of Harness—Saddles and Bridles—Bits—Their variety and how to clean them.

CARRIAGES.—Perhaps no nation or country in the world displays such beautiful light wagons and carriages as are seen in Fairmount Park, Philadelphia, and the Central Park, New York, on every fine day. To a foreigner, their light airy construction is in remarkable contrast to the heavy equipages of Europe. These light and elegant turn-outs are peculiar to the United States. The material of which they are built in a very great measure insures their safety and strength, although our faith in their safety is often shaken by the accidents that occur, and which, it must be confessed, had a little more substance and strength

been allowed, would have been prevented, and valuable lives occasionally have been saved. Are we not sustained in this view by the cause which gave rise to the death of the late Peter Cagger, of New York? The wheels of his wagon broke down without apparent cause, as they did not come in collision with any object, but, from their want of strength, were unable to stand the smooth avenues of Central Park, when attached to a good horse. Would not the life of James Harper, of the same city, have been saved, if his carriage had been somewhat stronger, to have broken the force of the collision? And why was the rotten tree-box on Broad Street, Philadelphia, stronger than the wagon that caused the death of Mr. Levering?

Those who are fond of fast horses, should adopt the saddle, and eschew the "toy" called a wagon, for in the event of a slight collision, down goes the wagon and all that is in it, and away runs the horse, with the fragments of fashionable folly attached to him. However, we do not soon expect any improvement in this particular, while trotting takes the place of running at our race courses, and our streets and roads remain in their present disgraceful state. The relation of good or bad roads to horses, carriages, and wagons, has not escaped the observation of Dr. J. G. Holland ("Timothy Titcomb"), who writes to the *Springfield Republican*, that with the heavier carriages and wagons of Europe, *one* horse does with more ease and less exertion, work that requires *two* in this country; and moreover, in the city of London the horses go so fast without accident,

that their pace would *not* be allowed by the police regulations of Springfield, Massachusetts. He concludes his views by propounding the question "whether it would not be easier and less expensive for us to keep *one* mile of road in good order, than to buy and feed an extra horse?" We are not of those who believe that by increasing the safety of carriages and wagons, used for family and pleasure purposes, by the addition of a little extra weight to them, the improvement of trotters would not be continued, and that they would be allowed to deteriorate. The Scotch gentleman was about right, when after a little misunderstanding whether he or his coachman should keep *sober* to drive home one evening after a dinner party, and on the arrival of the carriage it was found *empty*, he concluded in the morning to have a new vehicle, not only strong, but one that *would* positively *hold* in.

We do not charge our carriage and wagon builders with fraud upon their too unsuspecting patrons, but they are not altogether blameless, inasmuch as we see the fine and expensive carriage often provided with inferior axles and springs, both in quality and make. This would not so often be the case, were owners better informed as to the "essentials" that constitute a good and safe carriage. Are the prices of carriages and wagons not sufficient to afford a "Collings" axle, that are so safe and so highly prized by every person, who has ever had them in use? Our firemen and their truck builders are ahead of builders and buyers of fine carriages in this particular.

Among the many advantages of the "Collings" axle, we may mention, that it does not need bolts to hold the wheel in its place; and it requires to be greased or oiled only three to four times a year. These axles on our "drag" have been greased once in six months, and then they did not require it.* It is also impossible for a wheel running on these to be forced off, because of the reversible brass burrs, three in number, and which are finally secured by a tempered steel spring-keeper, the whole covered from view by a silver or other metal ornamented cup, screwed to and revolving with the wheel. In addition to the above-named advantages, these axles are made by a peculiar process, and so durable, that with ordinary care, they will last the wear of several carriages or during the longest lifetime. Yet, notwithstanding the advantages of the Collings, the ordinary cart but diminutive axles are seen too often on our expensive carriages.

This matter of axles is not the only exception we make to the finish of a perfect carriage, for every day when our attention is attracted to them, the *springs* of many are also decidedly faulty, and even dangerous to life and destructive to the other portions of the vehicle. Let us illustrate, by simple reference to the fact, that the upper and lower half of the spring being joined firmly at each end, allowing no elongation when weight is placed upon it, the result that naturally follows this confinement is that

* The material for greasing was castor oil.

the spring will either be broken, or as it were take offence at its unreasonable restraint, and toss out the occupants of the carriage. If, however, the weight be not sufficient to do this, the vehicle will be a very miserable one to ride in, will soon become worn in parts and discarded—if in the meantime, the driver or coachman be not innocently blamed for rough driving, discharged, and another a little more intelligent employed, who will find out the cause of the difficulty. We have known instances of this kind to occur in Philadelphia.

While with a friend at Point Breeze Park one day, a gentleman drove in with a fine horse and wagon. My friend asked him if he had not *lost* the cushions? “No; they are *under* the seat,” was the reply; and on further investigation we ascertained that the gentleman could not keep his seat on the cushion, but from what cause he did not know. My friend at once suggested that the springs were not only too stiff and strong, but their principle of make was wrong also.

The remedy for this condition of things lies not so much with the buyer as with the builder, although the intelligent are not innocent, inasmuch as they often do not demand their rights. If they did, builders would necessarily be more particular as to the safety, comfort, and construction of their carriages, and give a fair return for the money invested.

The springs of family carriages and business and goods wagons are, on the whole, made on better principles than

those placed on the road wagon, because the C, the cradle, and shackle spring are still used, but on the road and trotting wagon are not to be seen. Every road and trotting wagon should be placed on elliptic springs as they now are built, but with the addition of a *shackle*, at least on one end, to allow of elongation and contraction, according to the weight placed upon them, and the condition of road or street, and our word for it less *breakdowns* will occur.*

Until we have the introduction of shackles to allow *shuttle* movement, broken springs and accidents with loss of life will be of frequent occurrence. For road and trotting wagons of two springs, one in front and one behind, and placed *along* the axle, a shackle on one end of each will be enough; but this would give an odd appearance; therefore to prevent this, let one of the shortest shackles be placed at both ends of each of the two springs, making them more pleasing to the eye and even more serviceable. For wagons of four springs, and placed *across* the axles, there will be no necessity for shackles on *both* ends of the spring, either for appearance or safety; but let the shackle be placed on the end reaching under the body of the wagon. Carriages with springs so constructed are easy to ride in, and will wear many years longer. With shackled springs and Collings axles, we can *sail*—don't say *ride*—over the rough-

* It is estimated that \$56,000,000 is lost annually to the people of the United States in wear and tear of horses, vehicles and harness, by bad systems of road-making and street paving.

est and most hilly roads of Delaware county, Pennsylvania, with no jarring or jostling to the body, nor straining to the vehicle.

We must, however, leave the general construction of carriages to those to whom it more properly belongs. Our best axles are the mail, and half-mail or half patent, and are not in or up to the general improvements in most other things made by our mechanics.

THE CARE AND CLEANSING OF CARRIAGES in a satisfactory and proper manner is understood by but few persons. Whether carriages be idle or in everyday use, they nevertheless require care and attention. Moths and rust, mildew and decay are the result of idleness and improper housing, and can only be prevented by good ventilation and dryness. Carriages in daily use should be washed, and not dusted, after the journey is over, with *cold* water. The articles in use for the washing of carriages are: the sponge, one for the panels or body proper, which should be kept free from dirt and sand, and another for the under carriage and wheels; the spoke-brush, for the tires of the wheels. The mop of cloth, attached to a handle, is not in use in this country, as the sponge is sufficient, and not very costly; but as a matter of economy it is an excellent contrivance in the place of the sponge. These articles are for the rough or outside cleansing of carriages. The chamois leather, commonly called the wash-leather, is also used in its dry and wet state—the wet one to dry or absorb the moisture after

washing, the dry one for polishing the glass of the windows and plated work of the wheels, doors, &c. A duster and fine-haired brush will be required for the cushions and lining, whether it be an open or covered carriage. The first movement in the washing of a fine varnished carriage is to move it where sand and dirt will not fly against it, by the splashing of water on the ground or floor. Such a place is provided in city or private stables; not so, however, in all livery and country stables; but where care is one of the elements of a coachman's nature, he will have a round or sparred rack, the full length and breadth of his carriage, constructed out of any kind of spars laid on the ground, upon which the carriage stands till washed. The next movement is to close the windows, put down the curtains, if it be an open carriage, remove the cushions to where they will not get wet, and commence by throwing an abundance of cold water all over the carriage, at first on the top, which will also wet the lower parts in its descent. This is important, especially if the vehicle be very muddy, so that no force other than the water will be required to remove it. This being accomplished, the top and panels may then be slightly washed with clear water with the sponge kept for this purpose. Allow the water to drip off whilst the under carriage and wheels are being sponged, and when all are cleanly washed, sponge with their respective sponges, moist, but not wet; after which dry with the wet or damp wash-leather. The carriage may now be opened and the curtains rolled up, the mountings of silver, or

whatever they may be, polished, the carriage removed to its place, and before it is used again the inside and windows should be put in order.

To keep carriages looking well and free from stains as long as possible, wash them shortly after coming to the stable, if the hour of the night be not too late. If the axles be common, grease with "crown soap," so that the spots or stains will wash off again; but if the axles are one of the patents, use castor oil, which does not "gum," and can in great part be washed off, and moreover, lasts much longer than almost anything else. "Crown" soap is now much used by steam marine engineers, for certain parts of the machinery. Crown soap is simply the Scotch soft-soap, but differs very much both in appearance and material from the American soft-soap. It is made with whale or cod oil and lie of potassa, the oil giving a dark brown color to it, and by the addition of a small proportion of tallow, the solid white granulations of stearate of potassa are formed, giving the appearance of the meat of figs. Soft-soaps made from fats, give a dirty white color or shade.

The crown soap is largely imported into this country, and is chiefly used in our private stables for harness, saddles, bridles and leather, saving the necessity of greasing or oiling, to keep them soft. In addition, we now recommend it as a wheel-grease for common axles, which cannot hold grease very long. The manufacturer of soap, who will take hold of it, will no doubt reap a fair remuneration; for what is bought of it in England for three pence (6

cents), is sold by our harness-makers, saddlers and seedsmen for one dollar.*

HARNESS, its make and material, requires little notice, and our space can be more profitably and usefully occupied. We may remark that it should be fit for the purpose for which it is intended, plain and substantial, either with black mounts, or those of silver plate. The present fashion of Prince's metal mounts, or gold imitation, is not only wanting in good taste, but difficult to keep clean, and if it is not clean, looks like shabby gentility. Rather adopt the old brass mounts, than the glitter which is not gold, and which is a source of annoyance to the stableman in his efforts to cleanse and polish ornaments, and please his employer.

SPECIALITIES IN HARNESS.—Although we hear much of advice and remonstrance from the Societies for the Prevention of Cruelty to Animals, and to horses, from the use of the bearing-rein, nothing has been publicly said about

* CRESYLIC SOAP.—A soap in the manufacture of which carbolic acid is used, and which stablemen will find it to be of the greatest benefit, in the healing of sores of all kinds. Scratches, chafes from the saddle, collar, or other parts of the harness, mange, ring-worm, flies, fleas, lice and parasites, whether on the horse or dog, will surely be cured by the use of this soap. Its disinfectant properties are so great that its use is almost demanded in the cleansing of stables, harness, brushes and combs, when infectious and contagious diseases have been in the stable. Those persons at all acquainted with the properties of carbolic acid, will at once recognise the great value of cresylic soap.

the effects arising, whether injurious or otherwise, from the use of the new-fledged contrivance of a bridoon bridle for single or double carriage driving. It cannot be from its harmless use that the silence from such a quarter is to be attributed, but more perhaps from attention not being directed to it.

This bridle, perhaps, would be of no more injury or inconvenience to the driving or family carriage-horse than the old English bridoon bridle and bit, were it used and applied with the horse in the same way, for certainly it is for the same purposes and with the same end in view. Correctly speaking, it is only part of the harness of the horse's head and mouth. In the mode of use or application of this contrivance to the mouth, head, and neck of the horse, lies its great objection in our view. Instead of the application or attachments to the bridoon bit in the mouth, being by two ends of a strap, and carried to the middle turret on the harness-saddle, by the old style of bearing-rein, and secured there, this rein is carried from the mouth up the face, forehead, and along the crest of the mane, and is secured as in the old style, to the middle hook or turret of the saddle.

The objection is not so much to the bridle as to the mode of bearing. Thus the bearing against the lower jaw, as with the ordinary way of bearing-rein, is done away with, and the bit is pulled up with persistent force by a powerful leverage, against the soft muscles and skin of each side of the mouth, to its injury, causing the head to

be carried very high and in an unnatural position. Indeed it is a severe gag in the mouth, possessing all the faults and giving rise to all the evils of the bridoon and bit, without any advantages, unless it be the extreme elevation of the head by the fulcrum or crown of the head, over which this contrivance plays.

To close this notice of a Kemble Jackson bridle without protesting against its use, would be a dereliction of duty to an animal that deserves better treatment at our hands. Happily, however, its use is not general among our horsemen, but is confined chiefly to some livery and sales stables, to create the impression to the simple in such matters, of the extra style and show of an animal designed to be parted with or sold whenever a price can be obtained—and is one of the means adopted to attract attention of customers by a display of his style and high carriage.

THE KICKING-STRAP.—This is not the contrivance exhibited to audiences by so called “horse-tamers,” but a plain strap passing over the loins of the horse when in harness, and buckled to a strap passing round the shafts of the wagon. By its use when so attached, the mere effort to kick by raising the hind parts, elevates the shafts and front part of the wagon, thus keeping the vehicle at all times at good distance from ordinary kicking horses heels. In Europe, the kicking-strap is used on *all* road horses, instead of the ordinary breeching, looks better, and is less cumbersome.

FOUR-IN-HAND.—However much we admire this drive,

which is occasionally seen, it does not, as a rule, find favor among our wealthiest citizens, although some have adopted it. There are many styles of these turnouts, and all are more or less elegantly and expensively gotten up.

TANDEM is a style of driving not often seen and not much admired. It is difficult to manage, and our streets are no place for its use. It requires a good macadamized road, very little crowded. The harness for this drive, like the four-in-hand, is a mere duplicate of that on the wheel-horses, the traces and reins and whip being of suitable length, with the addition of a person who knows how to use them.

CARE OF HARNESS.—The harness, like the carriage, requires, when dirty, to be washed with water and dried with wash-leather, and finally blackened with blacking and polished with a brush.

The following is a valuable receipt for the making of harness paste or blacking:—

Beeswax	.	.	.	.	.	$\frac{1}{2}$ pound.
Crown soap	.	.	.	.	.	$\frac{1}{2}$ pound.
Ivory black	.	.	.	.	.	2 ounces.
Indigo	.	.	.	.	.	$1\frac{1}{2}$ ounces.
Oil of turpentine	.	.	.	.	.	3 tablespoonfuls.

Dissolve in a vessel over a slow fire, and stir till the mixture is perfectly cold.

The above should be all that new or soft harness should get, not only as a polishing agent, but as a softening compound. If the harness be very hard and stiff, soften it with the following mixture:—

Linseed oil	.	.	.	.	.	.	1 pint.
Tallow	.	.	.	.	.	.	1 pound.
Beeswax	.	.	.	.	.	.	1 ounce.
Rosin	.	.	.	.	.	.	1 ounce.

Dissolve over a slow fire, and apply warm.

For fine new and costly harness, at least for the first year, the crown soap already spoken of is all that will be found necessary. The crown soap is not used so much for *washing* the harness as it is for softening and keeping the leather pliable, and may be applied as follows: The harness being previously cleansed and dry, smear on a little with the hand, as if going through the process of greasing or oiling; after this, come lightly over it with a wet or damp sponge, and dry with the wash-leather. A fine soft appearance, not unlike a piece of dressed kid skin, will be the result. If a polish be required shortly afterward, the harness will have to be thoroughly polished previous to soaping, softening, or greasing, and a polish can immediately be produced, with little labor, by the use of the paste. The mountings of silver are less troublesome to keep in good condition than any other kind, even by soap and water; but a slight rub with a dry chamois, blackened with lampblack and dipped in a little whiting, will be all that can be desired.

Brass and Prince's or yellow metal mounts are difficult to keep clean and free from stains or spots, which can hardly be removed by rubbing, if not previously moistened by some of the mineral acids. To save labor and make a

perfect polish without stains in the metal, the following receipt will be found a very effective and valuable polishing liquid:—

Sulphuric acid	.	.	.	.	.	1 ounce.
Cold water	.	.	.	.	.	$\frac{1}{2}$ pint.
Tripoli	.	.	.	.	.	1 ounce.

Pour the acid into the water in a bowl, till the heat that is generated passes off; then pour it into a bottle and add the tripoli. This will prevent the breaking of the bottle and the loss of the liquid.

The above mixture was given by us to a few persons, and was used with great effect for the first time in the summer of 1868 at Long Branch. It is next to impossible to keep brass and yellow metal in order at the sea side.

SADDLES are, since the late war, made of various shapes and of different materials, each of which, no doubt, possesses properties of value, peculiar to itself, and as we are not as a people much in favor of scampering on horseback, we will confine ourselves to the case of saddles made in part of the skin of the pig and of other brown leather. Saddles should, like harness and carriages, be washed when dirty, and when not in use covered from the dust and protected from moths. To give a fine dark brown shade to white or brown leather, nothing answers so good a purpose as the watery portion of the blood of the ox, kept in a corked bottle and protected from smelling and decay by a few drops or grains of carbolic acid mixed with it. As a substitute for this, no better is known than the crown soap,

both for coloring and keeping the material in good order. As a preventive of the moth in saddles, blankets, &c., a strong solution of carbolic acid should be sprinkled over and amongst them before they are covered up.

BRIDLES for riding purposes are made of brown leather, and are kept and cleaned like the saddle.

BITS for riding or driving are of many patterns and devices, each of which has its distinct name; but as a universal bit for riding and driving, the plain snaffle is the one. Some horses with hard mouths require a curb, and as a matter of safety and taste, when on horseback, a double bit is used, a snaffle and curb, separate or combined. When separate, the curb is called a Pelham bit; but some prefer a Hanovarian, a bit of greater power and purchase on the mouth of the horse. Those who are familiar with the writings of Baucher of France, will see that he insists that one kind of bit is sufficient for all horses, and inasmuch as his choice falls upon a *double* bit or *bit* and *bri-doon*, we cannot but agree with him that the horse that cannot be managed by either snaffle or curb, is not worth having or contending with. Bits are made of polished steel; but to encourage laziness they are often plated with silver, which soon becomes rusty and shabby. The stableman that cannot keep a few bits from rusting, is not likely to be a good groom. Bits cost too much money to let them rust because they have been plated. No cover to polished steel can improve its appearance. An old plated steel bit is worthless, but one of clear steel will command

its value. Bar-sand, soap and a piece of woollen cloth are all that is necessary to clean steel bits and keep them in order. Tasty persons burnish the bits every time they are used. Before putting them aside, it will be necessary, to prevent rust, to have them wiped over with a woollen rag, previously oiled with salad or sweet oil.

Carriage or family horses, however gentle and kind in temper, disposition, easy of mouth, and management when in harness, should never be trusted without bits, because we see too often the folly of such dependence. We can call to memory the loss of life and destruction of property, arising from such a neglect.

The single and double harness horse, however gentle he may be, can only be considered safe and manageable in the moment of danger when provided with a curb or bar bit. Circumstances will occasionally arise in which power and promptitude can only save from accident—like the good staunch ship, in strict obedience to its rudder in the storm. However unpleasant the mouth of the horse may feel with a snaffle-bit, there can be no exceptional argument as to its universal safety, under certain conditions; for no well-fed, spirited horse, when excited, can be controlled by one person, with a plain bit in its mouth. It is this knowledge, we believe, which gave for the saddle-horse a double bridle, with both snaffle and curb bit, either of which can be used in the moment of danger. The safety-rein in use in some parts of Europe, and used for safety on harness-horses, has the same purpose. It is buckled to a curb or

powerful bit, while the driving reins are attached to the rings of a plain snaffle. Thus the "snaffle-mouthed" horse is driven with pleasure to all concerned, and at the same time safety is fully insured by a gentle reminder, or use of the reins, of the powerful Pelham, Hanoverian, or, it may be the carriage harness curb, or bar bit.

The bridoon and bit of the family carriage horse answers the same purpose, but their use is a little reversed, as the snaffle is attached to the bearing-rein, and the driving-reins to the curb, by which the horse is guided and driven with safety and pleasure to all.

THE CURB and its use merits a word from us on the same account, because upon its presence or absence, and proper attachment to the bit, depend the control of the horse and safety of the person on or behind him.

Curbs are made of steel links or chain, and attached to each side of the bit by spring hooks, and when properly adjusted, lie immediately on or behind the chin. The tightness of the chain-curb should be just sufficient to admit a finger between it and the horse's lower jaw.

Curbs of leather straps are not safe, either in strength or severity, when danger approaches, and should therefore be replaced by the curb-chain. Some riders consider themselves unsafe without a LIP-STRAP to pass through a ring in the centre of the curb, and attached to each side of the bridle, to prevent the horse from working the bit up between his teeth, and holding it there, in defiance of his

rider. In harness, the same contrivance can with equal effect be applied.

Whatever deference may be paid to a favorite groom or coachman in matters of the stable, allow no change from a curb-bit with chain curb, under any circumstances, "because," as a faithful coachman said to us the other day, "they may be wanted were they not on." It is the want of a thing that more forcibly and frequently attests its value, for by its use we are apt to overlook its true worth by its saving influence.

CHAPTER VII.

VETERINARY SURGEONS.

Veterinary Nostrums of the Stableman—Fattening—Glossing the Coat—Conditioning Horses.

PERHAPS no interest of the stable is of as much importance to the owner of horses as the assurance of the services of a sensible veterinarian, not only when sickness or accident occurs, but as an adviser, with a view to the prevention of disease and the promotion of a high standard of health in the horse.

In a year or so it is our intention to retire from the veterinary profession to the quiet shades of a country home, never more to return to active life, unless it be not to assist with our advice immediate neighbors, in the stable, field, or fold.

We have thus prefaced with the above remarks, in order to show that we have no private ends to serve or prejudice to vent in a review of this important stable adjunct. Our success and profit in practice, together with the advantages accrued thereby to patrons, leave for us nothing

further to be desired; therefore we can afford to give honest views and truthful expressions as a guide in the selection of a veterinary surgeon. In a country like this, it is therefore to be expected that there are persons of almost every nationality to be found in all our large cities and towns following and practising veterinary medicine and surgery. The success to themselves and satisfaction to their employers we will not individually attempt to trace; but it is our undoubted conviction, arising from experience and the practice of others, that no school or nationality of veterinary science is as perfect as it should be, and its followers therefore partake of the same deficiency, if by intuition the necessity of a good medical education be not seen and acquired in addition thereto. This will be seen without argument, when we find the preponderance in numbers of celebrated veterinarians throughout the world to be M. D.'s in addition to V. S.

We need not refer to the dashing young student (Coleman), of Sir Astley Cooper, the great surgeon of England, Percival, the accomplished gentleman and author, and of Professor Gamgee himself, who has in his writings distinctly stated that by a combination of a veterinary and domestic medical education, the most perfect of veterinarians are produced. Mr. Greaves, a veterinary surgeon of good standing, in Manchester, England, and one of the board of examiners of the students of the Royal College of veterinary surgeons of London, states that many of its graduates do not even know in which leg a horse is lame.

This, to our knowledge is not only true of some of them in their own country, but of this also, and we know of but few of them who ever brought credit upon their *alma mater*, the profession, or M. R. C. V. S. How is it that their proficiency in theory is so seldom borne out by facts, when laid before our courts of justice and Philadelphia lawyers, in cases of veterinary medical jurisprudence?

We would not have placed the blame of almost universal inefficiency to any particular school, were we not exactly informed of it by our distinguished friend and surgeon Professor Samuel D. Gross, M. D., of the Jefferson Medical College of Philadelphia, who in accordance with the expressed wish of the "American Medical Association," as a committee on veterinary colleges in the United States, visited several like institutions in England and France, during his late tour abroad.

In confirmation, independent of our experience as to the general inefficiency of some of the graduates from this college, we will merely refer to the controversy that arose on contraction of the horse's foot, between Robert Bonner, Esq., of New York, and Veterinary Professor John Gamgee, of London.

The unsatisfactory result of the special examination as to the cause and nature of the Texan cattle disease certainly adds nothing to its credit.

The Scotch or Edinburgh graduates who, although fully entitled to the appellation of M. R. C. V. S., by the sign manual of 1858, forming the law of affiliation of all the

veterinary colleges of the British Islands, absolutely refuse to adopt its title or recognise the St. Pancras or London institution.

The German veterinarians are mostly followers of Hahne-mann and homœopathy, and can only give satisfaction to those who believe in its tenets.

The French are intelligent, and are as a whole good practitioners, a little unnecessarily cruel, perhaps, in some operations, but brilliant in their execution. The want of good knowledge of the English language militates much against them, as it does also against the German and other European continental practitioners, when in this country.

Of whatever nationality or school, the person to be fully relied upon must, in addition, have a few years' practice and observation before a reliable knowledge can be acquired as to the climate and constitution of American horses and other animals. Persons in the profession without this observation can never be adepts in the art, or give satisfaction to their employers, or obtain profit for themselves.

The American practitioner, whether native or of long residence, is good or indifferent, just in proportion to the acquirements of the national smartness or general intelligence. On the whole they are a set of reliable and useful members of society, and are entitled to confidence, being well aware that an active competition would otherwise soon overwhelm and almost extinguish their professional individuality and reputation in the profession.

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THE VETERINARY NOSTRUMS of the stableman and professional horseman, are perhaps too extensive and too various to require individual mention. Their use or object being almost entirely confined to improving the condition of the horse, but more especially to producing a sleek and glossy coat. Some few stablemen, however, make great pretension to veterinary knowledge, and are too ready to test it on the property of their employers. This should not be allowed, where good and experienced veterinary surgeons can conveniently be obtained. It is poor policy and worse logic; for according to it, the barber by force of circumstances can take the place of the family physician.

Without at all referring to the treatment of diseases of horses by the veterinary knowledge acquired in the stable, on the box of the carriage, or back of the horse, we will merely mention the means used by some of them, for the purpose of fattening and smoothing the coats of horses.

ARSENIC.—Arsenic of commerce or white arsenic is by the dealer considered a great favorite in the fattening of horses, and it must, in truth be said, will not when given in moderate doses and continued sufficiently long, fail to please the giver. The dose should not exceed five grains; we have known much suffering and loss of animal life and property by the use of this drug when purchased according to its money value.

Horses fed with arsenic are difficult to keep in good condition and with a smooth coat of hair, when after a time they are deprived of the drug.

ANTIMONY, SULPHUR and NITRATE OF POTASSA or SALTPETRE in certain proportions is not an American nostrum, but of English origin, and is often used by persons in the American stable, not so much for fattening purposes as for giving a fine coat, which it will not fail to do. It must, however, be remembered that antimony is a metal difficult of solution, and consequently injurious to the passive organs of the body, such as the liver and kidneys, in which, after death, it can be seen throughout their substance.

ASSAFŒTIDA.—This gum-resin is a substance of frequent use for the promotion of the appetite and spirit of the horse, and some, on account of the alliaceous smell, tie a piece of it to the bridle bit to prevent horses from “catching” any disease. It is a good bitter and will promote the appetite, but has no effect as a preventive of sickness. GENTIAN ROOT would be a good substitute for assafoetida for the stomach of the horse, when given in half ounce doses.

CARRAWAY and CORIANDER SEEDS singly, or combined with FENUGREEK, are great favorites with many persons for promoting the appetite, but are too costly; and moreover, better and more economical substitutes can be had.

SWEET OIL and MUSTARD SEED are used by some stablemen to smooth the coat—one ounce of oil to a teaspoonful of the mustard seed. It will here be observed, that the oil is a good fattening material when given to animals in doses not sufficient to move the bowels or disturb the

stomach, and the seed of mustard would be more effectual, were it ground before being given.

Of the effects of the above mixture, we cannot speak from experience, but we are fully assured by those in whom we can believe, that it is beneficial.

GUNPOWDER and WHITE OF EGG are among the peculiar and inexplicable improvers of animal tissue, why, we cannot well understand, nevertheless, they are occasionally employed for the purpose of giving spirit and life to horses of easy disposition and not disposed to run off. The effects produced by a few days' administration, we are assured by one who has employed this mixture, to be almost miraculous, causing quiet horses to attempt to run away. We do not vouch for the truth of the effects of the above. Those who are curious, can with little trouble and expense test the effects for themselves.

WILLOW-BARK TEA.—This is a favorite as well as a harmless substance, when given to horses, mixed in their feed; it imparts good spirits and appearance. The bark is gathered before the young shoots are ripe and the sap of the tree has gone down. Then it is dried in a low-heated oven, or in the sun, and a few ounces of it put into a pot, with a quart of water, and boiled down to a pint. A tumblerful is poured over the feed once a day, or at night only.

We do not doubt the efficacy of this as a conditioner and appetizer of the horse, as the willow or osier contains a principle similar in some respects to the valuable and costly quinine.

SNAKE ROOT—*Virginiana Aristolochia Serpenteria*.—

A great, and perhaps the greatest and most favorite of all the stable bitters for the conditioning and laying of the coats of carriage horses—at least it is so in Philadelphia. There are few coachmen in this city who have not recourse to its efficacy. The root, after being gathered and dried, is fit for use. A portion of it is placed in an earthen or iron pot or vessel, covered with cold water, and allowed to steep for an indefinite time. The liquor only is used, and poured on and mixed with the evening meal every night, or till the expected improvement, whether of appetite or condition, or both, be satisfactory. It certainly does not offer those objections which exist against other articles in use for conditioning horses.

The above-named articles in use by stablemen and others are, as a rule, given to the horse without the knowledge or consent of the owner, but in the most secret manner. Certainly the owner is seldom if ever appealed to for anything for such a purpose, but he may be and is often told that time, &c., will improve the animals of the stable, little suspecting the use or effects of drugs.

OUR SUBSTITUTE for any or all of the above, either harmless or injurious to the horse, is composed of materials indicated by the general condition and constitution of horses, viz., a disposition to *anemia* or thinness of blood, and consequent want of spirit and fineness of coat or hair. These conditions are best met when the materials for blood making enter the stomach, coupled with those substances

known to promote digestion and assimilation of the food—
as follows :—

Sulphate of iron, powdered	.	.	.	2 ounces.
Gentian root,	“	.	.	4 ounces.
Pimento berries,	“	.	.	4 ounces.

Mix, and divide into twelve powders. Give one in the evening
feed two or three times a week.

It must not be forgotten that good sound corn, oats, hay, stabling, bedding, and grooming are all that is required for the health of horses. The effects of colds, coughs, &c., however, should not be neglected, as they have a very great tendency to give rise to watery and weak blood. To overcome this, a few doses of the above mixture will do good, and may be the means of saving a valuable horse.

To continue further the subject of *nostrums*, we may state that they are not confined to fattening of horses, but for every species of sores, lameness, &c. We have never heard mention, in all our experience in stables and among horsemen, of anything superior to a trot or heavy blanket that is used to check a “chill” upon a horse. We consider it of more importance than all the *nostrums* combined; for the effects of a chill are usually in strict proportion to its severity and duration. To supply a safe and certain remedy as a check to a congestive or other chill, will be to the coachman or horseman a matter of the first importance, when it is remembered that the chill, if not almost immediately checked, will the next day, or perhaps sooner,

result in pleurisy, lung disease, bowel affections, or foundering.

Make a solution of the acetate of ammonia, eight ounces, and give as a drench out of a bottle, and increase the clothing till the chill is checked. It should be given when freshly made.

Horses are subject to chills in winter after drinking water. To avoid this, fill each bucket and place them in the stable on a sparred rack laid on the floor, so that the water will, before the hour for watering comes around, be of the temperature of the stable, and near that of the body of the horses also.

CHAPTER EIGHTH.

MISCELLANEOUS.

Breeding and Training of Horses—Accidents—Sprains—Diseases—Runaway Horses—Pasturing of Colts and young Horses—Clipping—Good Feed overlooked, but an important agent in improvement of Breeds of Horses.

BREEDING AND TRAINING OF HORSES.—We would respectfully recommend all who are interested in this important subject, to peruse the work entitled “The Horse in the Stable and the Field.”

ACCIDENTS.—In the case of accidents to horses in the stable of whatever character, time should be taken to consider the nature of the injury, and determine the best course to pursue, and not to be in haste to have recourse to nostrums, bleeding, blistering, physicking, or starving the suffering animal. Soothe any irritation or agitation under which the horse may suffer; allow free ventilation, and give it all the *cold* water it may desire. Then, if it be necessary, a good sensible veterinary surgeon may be called in to consult with the owner as to the cause, cure, and prevention of the disease in future. Simple bruises, cuts, or sores on the skin may be left to nature, or at most anointed with tincture of myrrh and aloes, and if the sores discharge

matter, substitute a wash of chloride of zinc, in the proportion of four grains to the ounce of soft water to check excessive granulation (proud flesh). In the heat of summer, sores do not as a general thing heal readily.

SPRAINS.—The effects of sprains in horses depend on their situation and severity. If a ligament be sprained it will be more readily cured than if the injury involve the articulations of a joint; this not only gives more trouble, but is liable to a recurrence. Sprains of the muscles, ligaments, or articulations of a joint require for their cure absolute and entire rest, without which little good result will be observed from the best-directed treatment. Let no hot oils, liniments, embrocations, or blisters be applied, till all heat and tenderness have been removed; after this is fully assured and the foot placed more firmly upon the ground, the following liniment may be applied:—

Take of Oil of Olives,
Oil of Turpentine,
Tincture of Aconite Roots, each two ounces,

Mix and apply once daily till the skin becomes a little rough or swollen.

DISEASES.—The diseases to which horses are subject are many, and some are peculiar to the American stable. Hence the necessity for the employment of persons familiar with their treatment. We do not wish to treat of the subject in the present volume, as it is fully explained in the work entitled “Diseases in the American Stable, Field, and Farmyard.”

RUNAWAY HORSES.—In some horses this habit merely amounts to an inclination—waiting for an occasion to do so—and should be settled then for ever. The horse should be harnessed with coarse harness and hitched to a strong wagon, taken to a mud road and given every opportunity to run away, but not without a good steady driver as a guide, and to urge the animal to take his satisfaction in full by a thorough run without an effort to stop him.

PASTURING OF COLTS AND YOUNG HORSES.—The experience of many years has taught the author that the present system of pasturing colts and young horses is not only wrong, but positively injurious to them; especially if they be high-bred animals. How often have we been called to see young thoroughbred colts afflicted with diseases of the bones and joints of the legs—ring-bone and spavin! Why is this so in animals that have never been worked in any way, and only from one to three years of age? It is simply because of too much range of pasture, and often the pasturing of too many of them together. Let a half to one acre be strongly fenced for each colt, and there will be no ring-bone among them. The fence for this purpose—or at all events one that answers well—is the *dry* stone wall (laid up without lime or mortar).

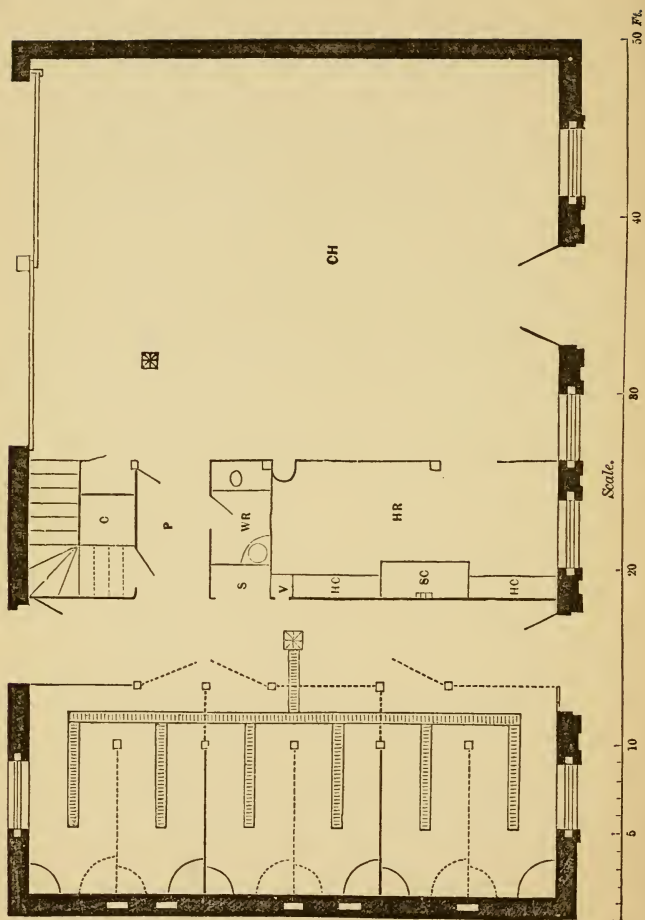
CLIPPING.—We refer to this subject, not to describe how it is performed, because there are persons who make a business of clipping horses, but to show in what kind of horses it is an advantage, as well as those on whom it has a contrary effect. Horses that are used for long drives

and have long coats of hair, which a long winter night will not dry, should be clipped for health's sake, if for no other consideration; this will enable the animal to do the work with greater freedom and less loss of nerve force, as will be seen by his improved condition and spirit. Horses used for shopping, calling, and standing at the doors on the street in cold weather, are better with their coats on, for the removal of it would amount almost to cruelty

GOOD FEEDING OVERLOOKED, BUT AN IMPORTANT AGENT IN IMPROVEMENT OF BREEDS OF HORSES.—The agriculturist—the tiller of the soil—the producer of grain or vegetable matter, will readily understand when for a simile, we liken the sustenance of animal life to that of plants, inasmuch as both develop stamina in accordance with the materials used or consumed to promote growth and perfection. In poor soil or earth containing little or none of the constituents of the plant, it cannot grow and develop, even though assisted by cultivation and a favorable season, as it otherwise would were it upon soil supplied with or containing all that its nature demands. So it is with horses in growth and perfection of development. What can be expected but a faulty form from the progeny of a *starved* mare? This may in a great degree be improved by subsequent generosity, extended both to colt and dam—to the latter when giving milk, and to the former till a perfect form is attained and the animal has arrived at its maturity. What wisdom or economy is there in stinting and starving colts the first years of their existence, and

expecting them not to show it in subsequent life? To improve more fully the forms and perfection of horses of whatever breed, good and generous diet must be allowed to both sire and dam even before procreation, and to the offspring from the commencement of its existence till a perfect animal is produced or it has attained the age of six years.

By proper attention to feeding, &c., the law of like producing like will not only be modified and improved upon, but a *good* sire and dam will be reflected in a *better* animal of its kind.



Ground Plan of Stable of Fairman Rogers, Philadelphia.

DESCRIPTION
OF
PRIVATE STABLE OF FAIRMAN ROGERS, Esq.
PHILADELPHIA.

See FRONTISPIECE.

THIS stable is 50 feet by 32 feet 3 inches, and 15 feet high to the under side of the cornice. Under the part where the horses stand there is a cellar 20×20 , divided into two parts, one for manure, the other for the small greenhouse boiler which heats the harness-room and coach-house, and supplies hot water for the stable. The ceiling of these cellars is of iron beams, with brick arches laid in hydraulic cement, forming a firm floor for the stable.

The manure cellar does not open into the stable, but by an outside door into the alley in the rear. The other cellar is entered from the bottom of the hay-drop.

The coach-house C H is 30×22 with an asphalte floor, affording room for four carriages to stand, besides space to drive in. The floor slopes to a drain over which carriages are washed.

The harness-room H R is $16 \times 7\frac{1}{2}$, and contains glass

cases for harness and saddles H C and S C, with bit-case and whip-racks on the other side. The washroom W R contains wash-basin and water-closet. The passage P from coachhouse to stable, is four feet wide and has its corners rounded off. A closet C for the carriage-brushes, &c., and a hay-drop from above, occupies the space in the turning of the stairs.

The stable is 30×17 ; it is divided into three loose-boxes, each 12×10 , and a passage five feet wide. The fronts and divisions of the boxes are all movable. The posts reaching from the floor to the ceiling, and all or any of them can be changed into stalls, thus giving accommodations for three, four, five, or six horses at pleasure. The stalls are five feet wide. Each stall has a drain, and each box consequently two, running into a main drain behind the stalls, and thence through a trap into the well in the cellar. The drains are of cast iron covered with movable iron gratings, so that they can easily be cleaned throughout the entire length.

The waste-pipe of the sink runs into the trap to insure its being always full of water and not of urine. The floor of these boxes is made of oak strips with asphalte run between them.

The racks and mangers are of iron, and movable, so as to suit both boxes and stalls and to admit of their being cleaned and painted. The sink S is furnished with hot and cold water, and in a kind of niche with a closet for stable-brushes, &c., over it.

The stable is ventilated by fresh air coming in through flues in the south wall and by a movable fan-light over the door, and the foul air is taken out by ventilator V close to the floor and by a large opening at the ceiling, both opening into the central ventilating shaft, which is warmed by the waste heat from the tank of the boiler. There is almost a total absence of stable smell, except when the weather is so cold that less air than usual can be admitted. The oats come down in wooden pipes in the back of the saddle-case opening into the stable. Under the stairs is a closet for buckets, brooms, and hose.

The first floor is 11 feet high in the clear, which with 1 foot for the joists leaves 3 feet for the height of second story at the sides. It is 9 feet in the clear under the ridge-pole, giving ample space for hay, straw, and feed, with a comfortable coachman's dressing-room, without adding much to the apparent height of the stable from the outside. A large hay-door, made like a dormer window, opens on to the back street. The large sliding coach-house doors open on to the end of a twenty foot street which runs straight out from them.

The building has thirteen-inch brick walls, and is lined and finished throughout with yellow pine varnished, there being no plastering.

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